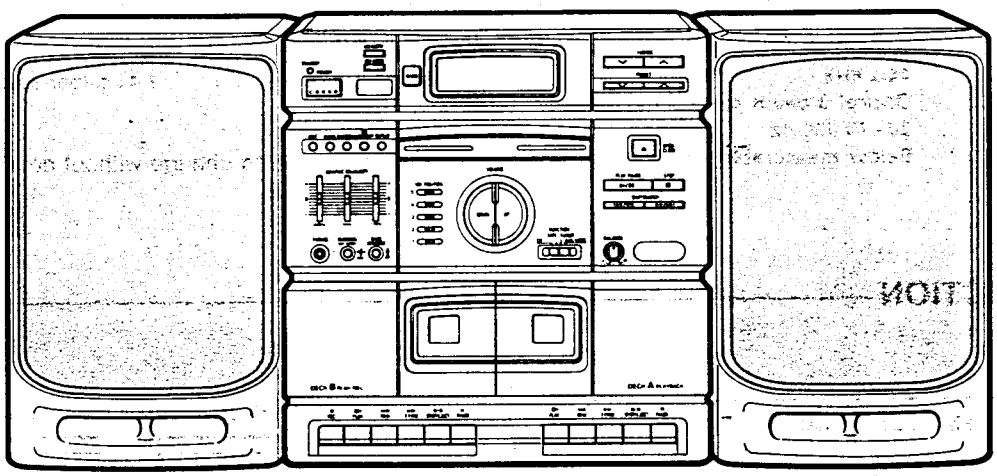
SANYO

FILE NO. LOCAL '93

AUGUST

Service Manual

Mini Component System DC-D5 (AU) (NZ)



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PRODUCT CODE No.
129 418 05 (AU)

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This Service manual is consist of "RB-D5", "DC-D5U", "SX-D5".

REFERENCE No. SM580235

SPECIFICATION

DC-D5U MINI SHELF SYSTEM

Amplifier section

Output power	5 W × 2 (at 4 ohms, 10% distortion)
Graphic equalizer control	± 10 dB (300 Hz, 1kHz, 10kHz)
Input	PHONO : 2.5 mV / 50 kohms
Outputs	SPEAKERS : 4 ohms
	PHONES : 8 - 32 ohms

Tuner section

Frequency range	FM : 87.5 - 108 MHz
	AM : 522 - 1710 kHz

Cassette deck section

Track system	4-track, 2-channel stereo
Frequency response	80 - 13,500 Hz
Signal to noise ratio	50 dB
Wow and flutter	0.15 % (WRMS)
Fast forward / rewind time	Approx. 110 sec. (C-60)

CD player section

Channels	2-channel stereo
Sampling frequency	44.1 kHz
Pickup	Optical 3-beam semiconductor laser
Frequency response	20 - 20,000 Hz
Wow and flutter	Below measurable limits

General

Power requirements	AC : 230 - 240 V, 50 Hz
Power consumption	50 W
Dimensions(approx.)	270 (W) × 285 (H) × 186 (D) mm
Weight(approx.)	3.8 kg

RB-D5 WIRELESS REMOTE CONTROLLER

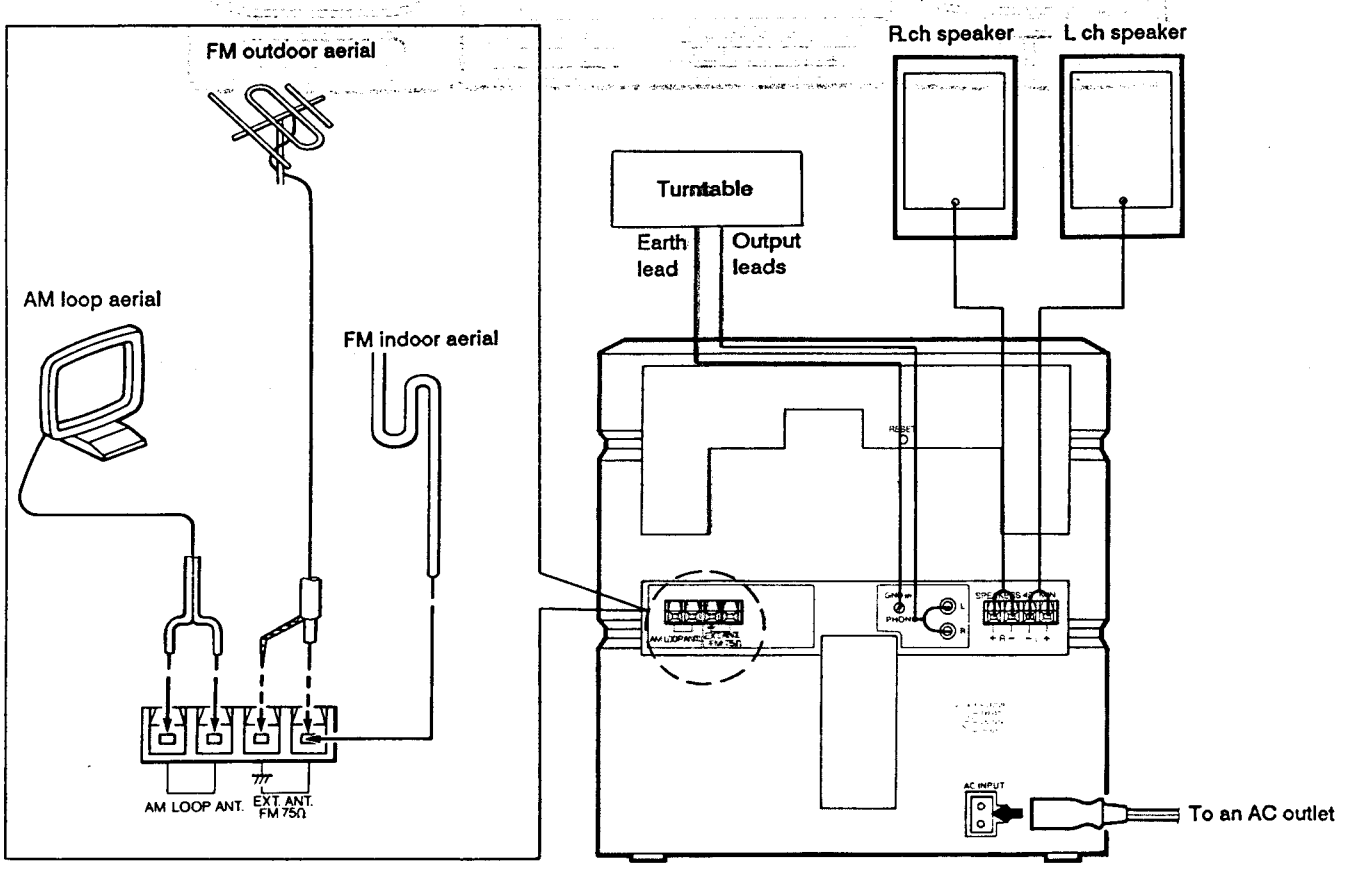
Power requirements	2 "AA" batteries
Dimensions(approx.)	41 (W) × 175 (H) × 18 (D) mm
Weight(approx.)	63 g (without batteries)

SX-D5 SPEAKER SYSTEM

Type	2 way bass reflex
Unit used	woofer : 12cm cone type
	Tweeter : piezo electric
Maximum power-handling capacity	10 W (peak)
Nominal impedance	4 ohms
Dimensions(approx.)	180 (W) × 285 (H) × 191 (D) mm
Weight(approx.)	1.4 kg (per speaker)

Specification subject to change without notice.

SYSTEM CONNECTION

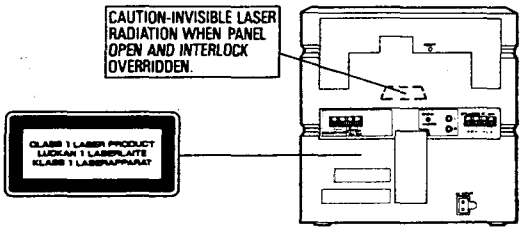


LASER BEAM SAFETY PRECAUTIONS (CD)

Do not look straight at the laser beam from the pickup and do not point the beam at your fingers or any other part of your body.
Note: The laser beam must never be allowed to enter the eyes since this may damage the eyes.
Power must never be supplied to a pickup with a damaged laser output part (objective lens, etc.).

Structural Safety Interlock
This model has a disc chuck lever and top lid. This disc chuck lever and top lid prevent to expose the laser beam for users.

INVISIBLE LASER RADIATION EXPOSURE TO BEAM IS DANGEROUS CLASS 1 LASER PRODUCT
OUTPUT POWER : 0.6 mW MAX WAVELENGTH : 790 nm



CAUTION - USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED IN THE OPERATING INSTRUCTIONS MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

THE COMPACT DISC PLAYER SHOULD NOT BE ADJUSTED OR REPAIRED BY ANYONE EXCEPT PROPERLY QUALIFIED PERSONNEL.

BEFORE REPAIRING THE COMPACT DISC PLAYER SECTION

Many semiconductors (ICs and transistors) and a pickup (with a built-in laser diode) for reading the music signals on compact discs by means of a laser beam are used as the parts in the compact disc player section.

1) Precautions for handling the pickup and semiconductors (particularly the ICs)

① The pickup and semiconductors (particularly the ICs) may be damaged if they come into contact with a source of high voltage static electricity. Do not bring them, therefore, into contact with or into the vicinity of anything which has been charged with high voltage static.

② The pickup consists of a large number of optical and precision parts. Do not store or repair it, therefore, in any location with a high temperature, high humidity, high magnetic fields or high dust concentration. (Since the pickup contains a powerful magnet, it must not be brought near any magnetized objects.)

③ Do not apply strong external pressure to the pickup or subject it to impact. Actions like these can cause the printed circuit board to crack or malfunctioning to occur.

④ Do not use a pickup which has been subjected to strong external pressure or to an impact. The performance of such a pickup may deteriorate gradually and cause malfunctioning.

⑤ The pickup is a single integrated part which has been very precisely adjusted. Therefore, its adjustment points and set screws must not be touched.

2) How to prevent static during handling

① When replacing any of the parts, disconnect the power plug from the unit being repaired.

② All measuring instruments, tools and repair equipment must be grounded. Cover the work bench where the repair work will be done with a grounded electrically conductive sheet.

③ Ground the metal part of the soldering iron in order to safeguard against leakage of electricity from the heater.

④ Repair personnel must wear grounding bands around their wrists to discharge static picked up by their bodies. These bands are grounded through a resistor (with a 1M ohms resistance).

Note: Under no circumstances must be the grounding bands be grounded without a resistor (with a 1M ohms resistance) since doing so involves the risk of electric shocks.
Since static in the clothes of the repair personnel will not be discharged by wearing grounding bands, every care must be taken not to allow the clothes to touch the pickup and semiconductors (particularly the ICs).

⑤ The pickup, which is a single integrated part, is kept in a conductive bag. Use this bag to convey the pickup from one place to another. In order to avoid damage resulting from static which may occur when the pickup is removed from the bag, make sure that it is not placed on top of the bag.

3) Precautions with laser beam

① Do not look straight at the laser beam from the pickup and do not point the beam at your fingers or any other part of your body.
Note: The laser beam must never be allowed to enter the eyes since this may damage the eyes.

② Power must never be supplied to a pickup with a damaged laser output part (objective lens, etc.).

4) Cleaning the lens surface

① Blow off dust on the lens using the kind of air brush which is used for cameras.

② Remove stubborn dirt with a cotton swab dipped in isopropyl alcohol. Do not use any other type of cleaning fluid since it may mark the plastic lens.
Notes:
① Do not use too much isopropyl alcohol: the excess may seep inside the pickup.
② The lens is held in place by a very feeble support spring. Therefore, when cleaning the lens, avoid applying any more force by the cotton swab than is necessary since this may bend the support spring out of shape.

CD MECHANISM REMOVAL

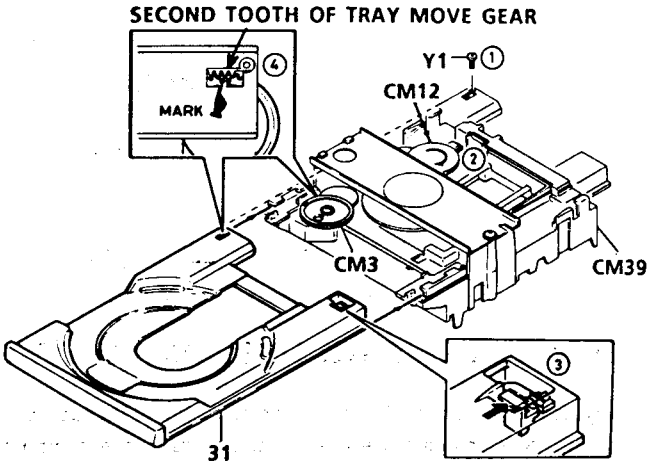
1) Preparations

1) Do not apply unnecessary force to the pickup when handling it. Care should be taken not even to touch the lens or drive circuit sections.
2) Do not apply unnecessary force (do not pull or push it forcefully) to remove the disc tray from its inside position. Unnecessary force may break the teeth on the tray gear (CM6).
3) In the descriptions which follow, the numbers in the parentheses after the parts are reference numbers in the exploded views. Refer to these views.

2) Removing and installing the disc tray

1) Remove the stop screw (Y1) of the disc tray (31). (①)
2) Pull the disc tray (31) all the way forward by turning the tray drive gear (CM12) clockwise. (②)
   Note: Do not take hold of the disc tray (31) and pull it out by force.
3) Push the catch on the disc tray (31) in the direction shown by the arrow, and draw out the disc tray (31). (③)
4) To install the disc tray, turn the gear (CM12) in the direction of the arrow as far as it will go. (②)
5) Align the disc tray (31) with the mechanism chassis (CM39). Adjusting second tooth of the tray move gear (CM3). (④)
6) Push the disc tray (31) toward the rear, and interlock it with the tray drive gear (CM12) as shown in Fig.④ .
7) Secure it with the screw (Y1) which was removed in step 1).

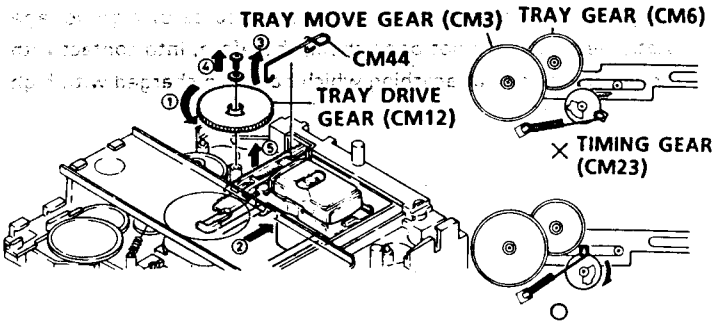
DISC TRAY REPLACEMENT



3) Disassembling the mechanism

(1) Removing the pickup block

1) Remove the disc tray (31). (Refer to steps 1), 2) and 3) of the section entitled "Removing and installing the disc tray.")
2) Turn the tray drive gear (CM12) counterclockwise (①), and move the pickup in the direction of arrow (②) as far as it will go.
3) Remove the spring wire (CM44) with tweezers. (③)
4) Remove the screw (CM11), and also remove the tray drive gear (CM12) and washer (CM13). (④)
5) Now remove the pick rack gears (CM16 and CM19).
   Note: It will not be possible to remove the pick rack gears (CM16 and CM19) unless the pickup has been moved all the way in the direction of arrow (②).
6) The pickup block can now be removed by taking out the screw (CM51) and spring coil (CM49).
   Note: If the timing gear (CM23) is in the state shown by "X" in the figure on the right, put it in the state shown by "○".



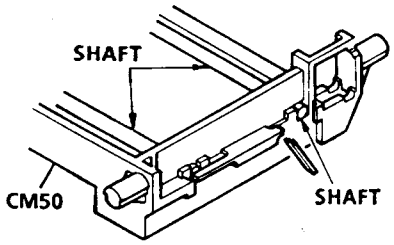
MECHANISM REMOVAL (CD)

(2) Replacing and lubricating the pickup

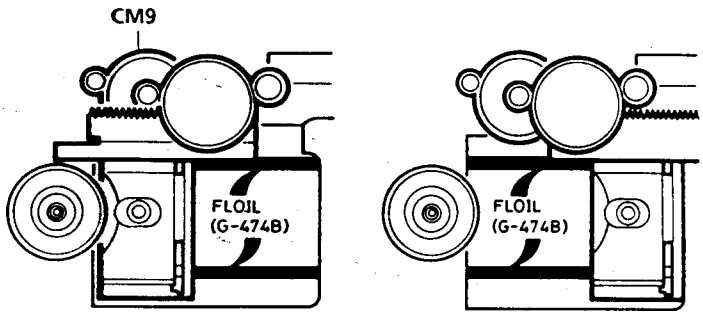
1) Pull out the two pickup rails (CM43) from the chassis (CM50).
2) The pickup (CM52) can now be removed once the two pick-up rails (CM43) have been taken out.
3) When the pickup has been replaced, be sure to wipe the two pickup rails (CM43) cleanly and apply grease (FLOIL G-474B) around the entire circumference of the rails and along their entire length.
4) Pass the two pickup rails (CM43) through the new pickup (CM52), insert them into the chassis (CM50), and fix them in place at an angle of 45° as shown in the figure.

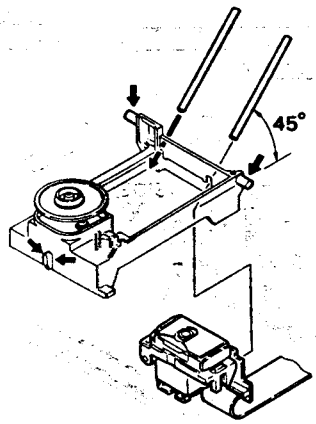
Notes: a. When applying the grease, do not allow any grease to adhere to any other parts.

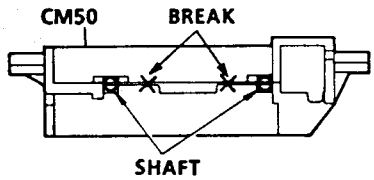
b. If a part (indicated by the dots in the figure) of the chassis (CM50) is damaged in the process of removing or inserting the two pickup rails (CM43) from or into the chassis (CM50), wipe the damaged area with a cloth dipped in alcohol (normal hexane), and bond it together using a bonding agent (Cemedine #575).



FIX BY THE CEMEDINE #575

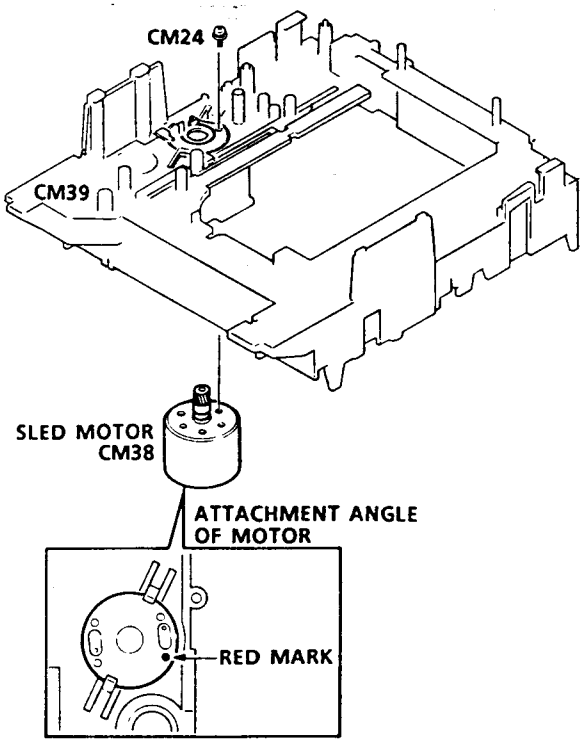






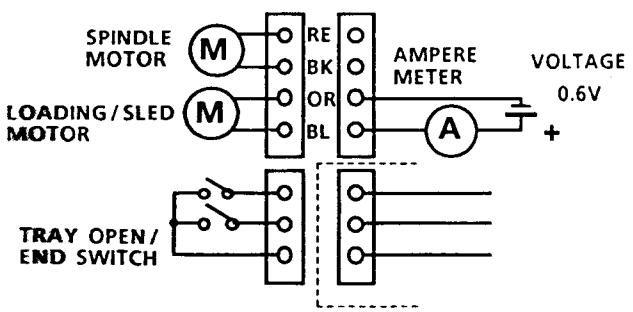
(3) Replacing the loading/sled motor

1) The loading/sled motor (CM38) can be removed from the chassis (CM39) once the screw (CM24) securing the motor (CM38) is removed.
2) Mount the new loading/sled motor (CM38) onto the chassis (CM39) using the screw (CM24).



(4) Checking the loading/sled motor's operation

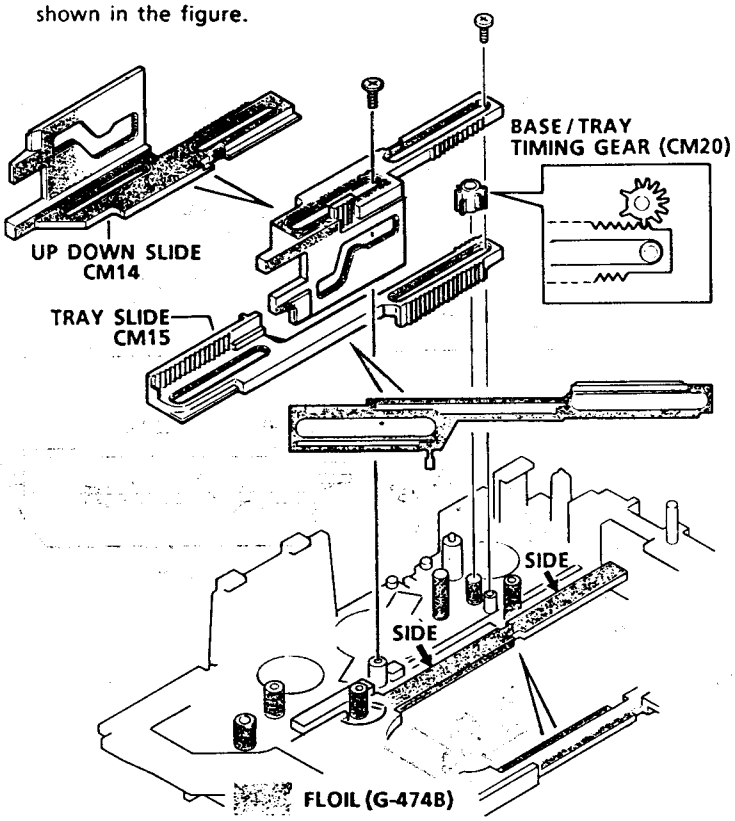
1) As shown in the figure, connect an ammeter and a DC power supply to the loading/sled motor (CM38), and set the tray open and end switches to the "off" [open] positions.
2) Check that the pickup (CM52) moves smoothly without stopping from the inner circumference of the compact disc toward its outer circumference when a DC 0.6V voltage is applied from the DC power supply.
3) The disc tray is housed inside and the gear (CM9) slips when a DC 4V voltage is applied from the DC power supply. Check that the ammeter indicates 120mA or more at this time.



4) Check points for CD mechanism assembly and lubrication

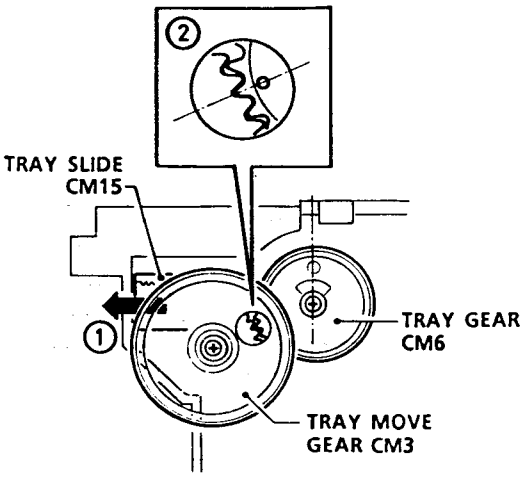
(1) Lubricating and mounting the tray slide

1) Apply grease (FLOIL G-474B) to the area indicated by the diagonal in the figure.
2) When inserting the tray slide (CM15), set the position where it is installed vis-a-vis the base/tray timing gear (CM20) as shown in the figure.



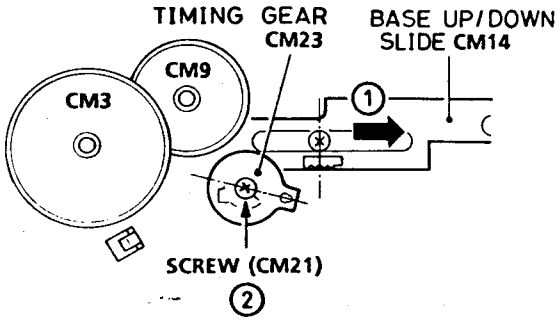
(2) Installing the tray gear

1) Move the tray slide (CM15) in the direction of the arrow ①.
2) Engage the gear section of the tray slide (CM15) with the inner gear of the tray gear (CM6) at the center line, as shown in the figure.
3) Align the tray move gear (CM3) with the position (○) of the hole in the outer gear of the tray gear (CM6) and engage the tray move gear (CM3), as shown in the figure.

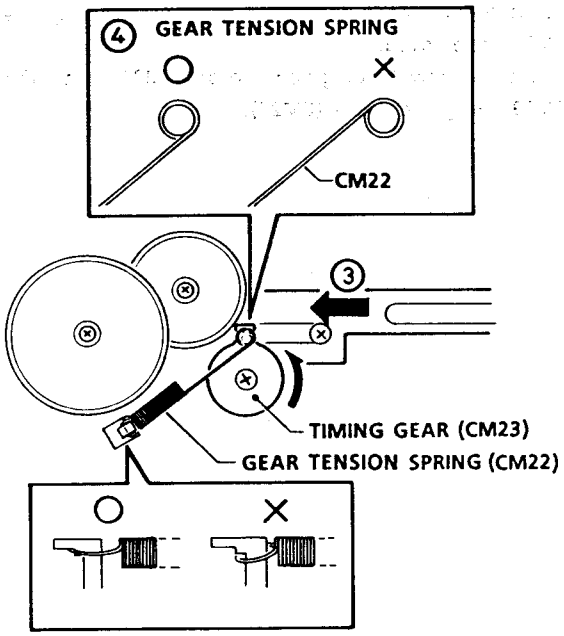


(3) Installing the base up/down slide and timing gear

1) Move the base up/down slide (CM14) in the direction of the arrow ①, and set the gears at the positions shown in the figure.
2) Insert the timing gear (CM23), and mount it using the screw (CM21).
3) Turn the timing gear (CM23) counterclockwise.



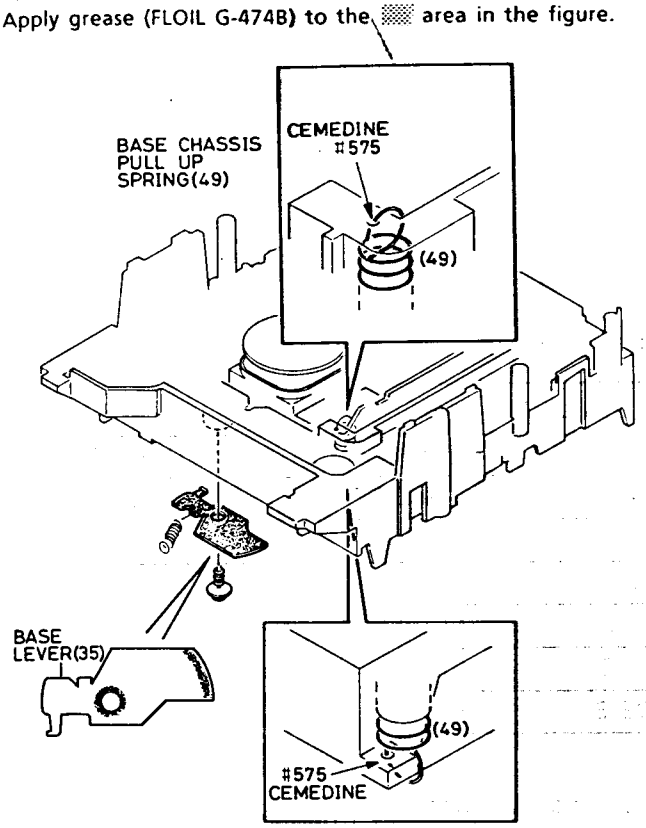
4) Hook the gear tension spring (CM22) onto the timing gear (CM23).



MECHANISM REMOVAL (CD)

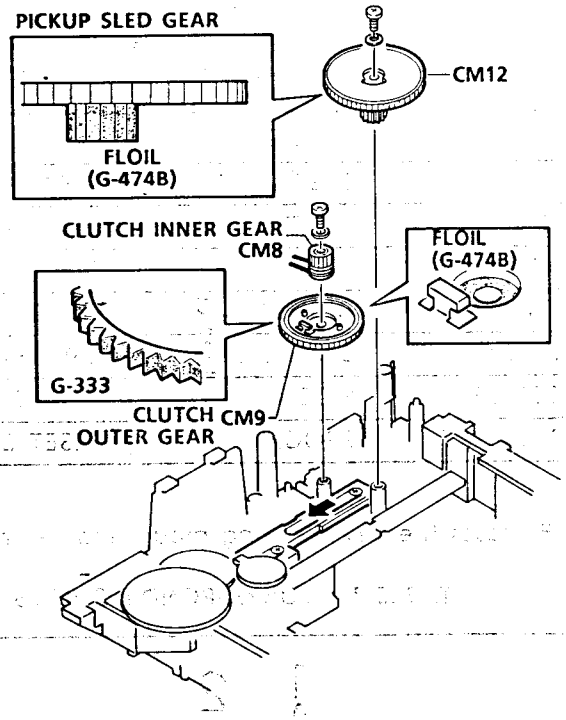
(4) Lubricating the base lever

Apply grease (FLOIL G-474B) to the ▒ area in the figure.



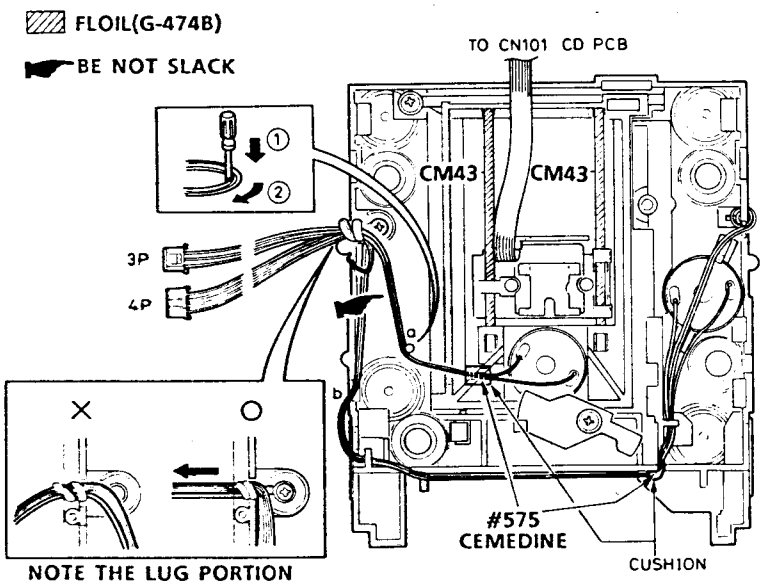
(5) Lubricating the pickup sled gear and clutch gear

1) Apply grease (FLOIL G-474B) around the entire circumference of the lower gear of the pickup sled gear (CM12), as shown in the figure (▒ area).
2) Apply grease (G-333) around the entire circumference of the outer clutch gear (CM9).
3) Apply grease (FLOIL G-474B) to the ▒ part of the outer clutch gear (CM9) where it makes contact with the inner clutch gear (CM8).



(6) Arranging and securing the leads

1) As shown in the figure, set the pickup (CM52) at a position on the innermost circumference of the compact disc, and pass the leads from the pickup (CM52) and spindle motor (CM48) through pin (a) of the chassis (CM39). Arrange the leads from the loading/sled motor (CM38) and sensor switch (micro switch) (CM26) by passing them through point (b) in the chassis (CM39). After securing the leads with the lug (CM41), check that the pickup (CM52) moves smoothly without the leads interfering with its movement.
2) If no problems arise in the ① check, secure the points shown in the figure using a bonding agent (Cemedine #575).



SERVICE MODE

Specifications

To enter any service mode, first simultaneously press the CD MEMORY and BAND (TUNER) keys on the unit. This accesses the service mode entry state. Now press one of the buttons on the unit to enter a service mode. As the service mode entry state is discontinued after 1 second elapses, the system will enter a service mode only if the next key is pressed within one second.

1. Checking the key input signal connections

- Enter this mode by pressing the MEMORY(TUNER) key during the service mode entry state.
- The entire LCD goes out once this mode is entered.
- In this mode, as keys on the unit are pressed segments on the LCD corresponding to each key on a one-to-one basis come on (i.e. the lit portions gradually increase). (Refer to Table 1.)
- Press the FM MODE (TUNER) key to exit this mode and return to the normal mode.

KEY	DISPLAY	KEY	DISPLAY	KEY	DISPLAY
BAND	DIGIT 1 : 0	REPEAT	REPEAT	POWER	DIGIT 7 : 4
MEMORY	DIGIT 2 : 1	PLAY/PAUSE	▷	RANDOM	RANDOM
FM MODE	@	STOP	TIME	EDIT	EDIT
TUNING UP	DIGIT 4 : 2	SKIP/SEARCH ⏭	FADE		
TUNING DOWN	DIGIT 5 : 3	SKIP/SEARCH ⏮	TRACK		
PRESET UP	SIDE A	OPEN/CLOSE	INTRO		
CD MEMORY	PROG.	PRESET DOWN	SIDE B		

@ : Releases the key checking mode and returns the set to the normal mode.

TABLE 1 : CORRESPONDING KEYS AND DISPLAYS IN THE KEY CHECKING MODE

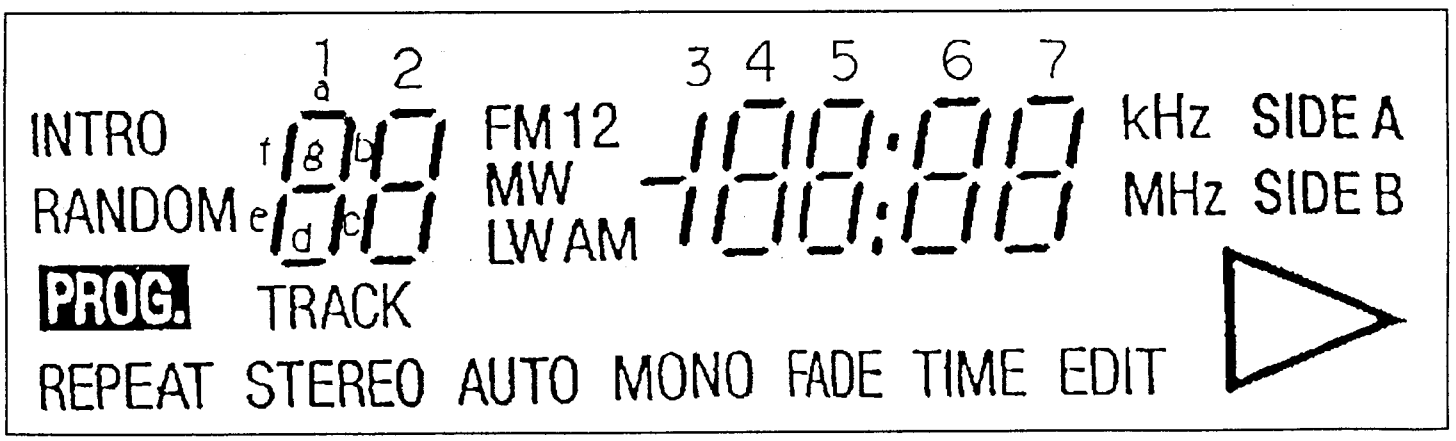


FIGURE 1 : LCD (LIQUID CRYSTAL DISPLAY)

2. Checking LCD connections

- Enter this mode by pressing the REPEAT key during the service mode entry state. (See note.)
- The entire LCD goes out once this mode is entered.
- In this mode, all segment of the LCD lights each time the REPEAT key is pressed.
- Press the FM MODE key to exit this mode and return to the normal mode.

3. CD tracking balance adjusting mode

- Enter this mode by pressing the PLAY/PAUSE key during the service mode entry state.
- If the power is off when this mode is entered, the power automatically comes on.
- In this mode, the tracking balance adjustment state (tracking is off) is automatically entered after the tray is completely closed.

- In this mode, the tracking balance adjustment state can be entered by pressing the MEMORY key during playing. Pressing the PLAY key in this state turns on the tracking servo and causes playing to begin.
- Turning off the power releases the CD tracking balance adjusting mode.

4. CD operation display mode

- Enter this mode by pressing the STOP key during the service mode entry state.
- If the power is off when this mode is entered, the power automatically comes on.
- In this mode, when CD function are used, displays like those shown in Table 2 (which represent CD operations different than normally displayed) appear in the LCD track number display.
- In this mode, displays like those shown in Table 3 (which represent CD operations different than normally displayed) appear in the LCD digit 5 display. If the display is "0" when search action of CD occurred not the errors, other is no display.
- This mode is released when the power is turned off or press the FM MODE key.

DISPLAY	OPERATION
00	Focus search has been begun
01	Focus search has been begun
02	Waiting for focusing
03	Focusing
04	Spindle kick is in progress
05	Both CLV and tracking are ON
06	Both CLV and tracking are ON
0-	Focus search has been completed (success, failure)
20	Tray closing has begun
21	Tray closing is in progress
22	Pickup return (internal direction) is in progress
23	Pickup return (external direction) is in progress
2-	Tray closing (pickup return) has been completed
30	Spindle braking has begun
31	Spindle braking is in progress
32	Pickup return is in progress
3-	Spindle braking and pickup return have been completed
40	Fast forwarding is in progress
41	Rewinding is in progress
50	Playing has begun
51	Playing is in progress
52	Playing is in progress (skip return operation)
60	TOC reading has been begun
61	TOC reading is in progress

DISPLAY	OPERATION
62	TOC reading is in progress
6-	TOC reading has been completed (success, failure)
70	L-point access has been begun
71	L-point access (REV64 track jump)
72	L-point access (FWD64 track jump)
73	L-point access (REV16 track jump)
74	L-point access (FWD16 track jump)
75	L-point access (REV1 track jump)
76	L-point access has been completed
80	Pausing has begun
83	Pause (REV16 track jump)
84	Pause (FWD16 track jump)
85	Pause (REV1 track jump)
86	Pause (trace)
90	Music access has begun
91	Music access (high-speed access has begun)
92	Music access (high-speed access is in progress)
93	Music access (high-speed access has been completed)
94	Music access (high-speed access has been completed)
95	Music access (high-speed access has been completed)
96	Music access (REV64 track jump)
97	Music access (FWD64 track jump)
98	Music access (REV16 track jump)
99	Music access (FWD16 track jump)
9-	Music access (final stage)

TABLE 2 : DISPLAYS DURING THE CD OPERATION MODE

NUMBER	STATE OF CD ERROR
1	Focusing is not possible in focus search.
2	The subcode is not input during disc startup.
3	TOC cannot be read.
4	The focus was lost while the servo was on (during playing, etc.).
5	The subcode is not input while the servo is on (during playing, etc.).

TABLE 3 : DISPLAY OF CD ERRORS

CD ADJUSTMENT

Electrical Adjustment

So far we have presented explanations regarding compact disc player handling, notes prior to repair, handling the pickup and disassembly of the unit. Be sure to carefully read these instructions before making any adjustments.

Preparations for Adjustments

Measuring instruments and tools

(1) Test disc. : YEDS 18 (Sony)

(2) Oscilloscope : SS5711 (10MHz or dual phenomenon)
or Memory scope : DSS6521 (Storage scope)

(3) Digital voltmeter (Input impedance 1M ohm or more)

(4) Screw drivers (no metallic) for adjustments

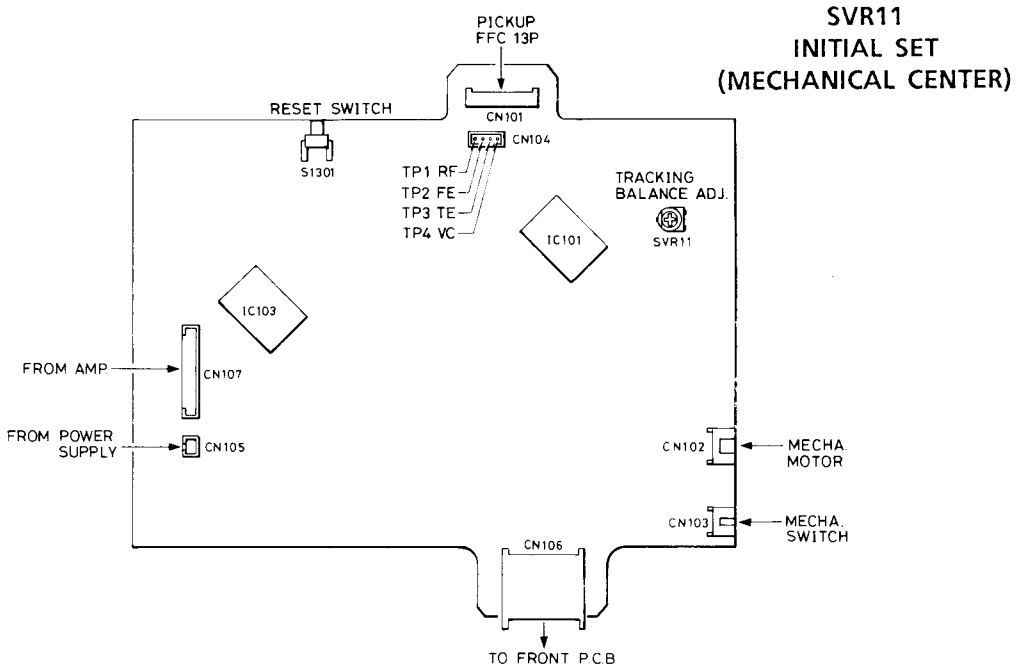
Notes : a. The adjustments can be using the equipment produced by other manufactures provided that the performance of that equipment corresponds to that of the above listed models.

b. Use a 10 : 1 probe for observing signals on the oscilloscope and storage scope.

c. Test disc is subject change without notice.

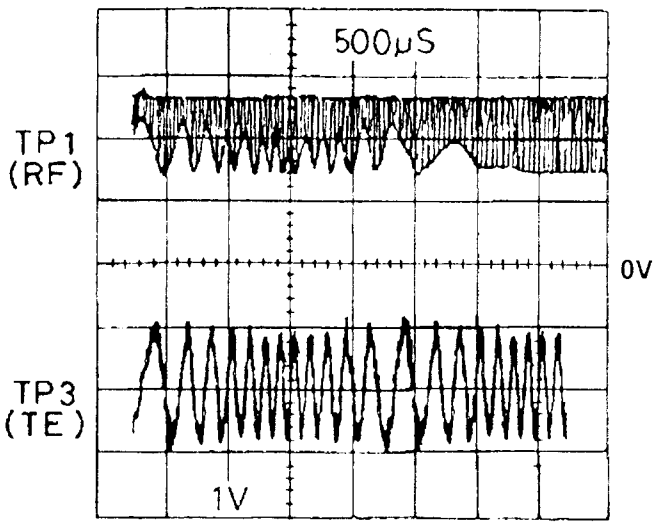
1. Initial set

Set the SVR11 at its initial position of adjustment controls as shown in figure below.



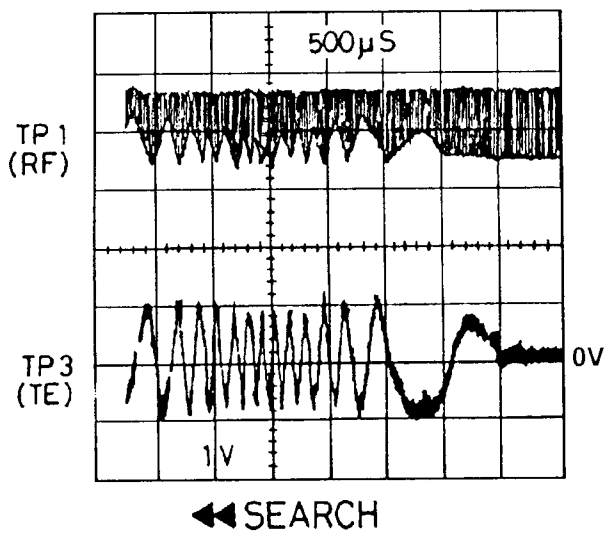
2. Tracking Balance Adjustment (SVR11)

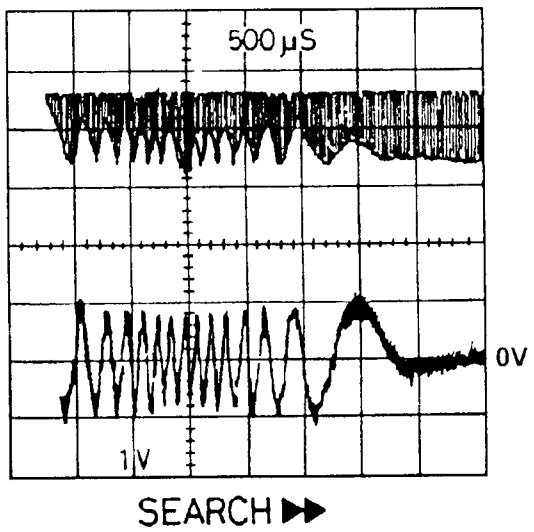
1. Connect the oscilloscope to TP3(TE), TP4(VC).
2. Turn on the power of the unit.
3. Load the test disc. And set the function to CD position.
4. Press the BAND (Tuner) button and CD MEMORY button at the same time. Soon after, press the PLAY / PAUSE button within a second. (See service mode)
   * Service mode (Tracking balance adjustment mode) entry
5. Press the PLAY / PAUSE button.
6. Adjust SVR11 so that the TE (Tracking Error) signal waveform of TP3 on the oscilloscope is vertically symmetrical relative to 0V. (See figure right side)
   * If this adjustment is imperfect, become run away the sled motor (pickup sending motor), inferior playability.



2. Other Adjustment of Tracking Balance (SVR11)

1. Connect the oscilloscope to TP3 (TE) and TP4 (VC).
2. Turn on the power of the unit.
3. Insert test disc, and set the FUNCTION switch to CD position.
4. Continuously press the forward search ▶▶ button or backward search ◀◀ button to do it.
5. Adjust SVR11 so that the TE (Tracking Error) signal waveform of TP3 on the oscilloscope is vertically symmetrical relative to 0V. (See figure below)





ADJUSTMENT OF TAPE DECK

1. Azimuth Adjustment

- Be sure to clean the heads before attempting to make any adjustment.
- Be sure both channels (1 and 2) are the same level (Using a dual-channel oscilloscope),
- Be sure both cannel's waveform are same for the phase matching.
- After completion of the adjustment, use the threadlock (TB-1401B) to secure the azimuth adjustment screws.

(1). DECK A

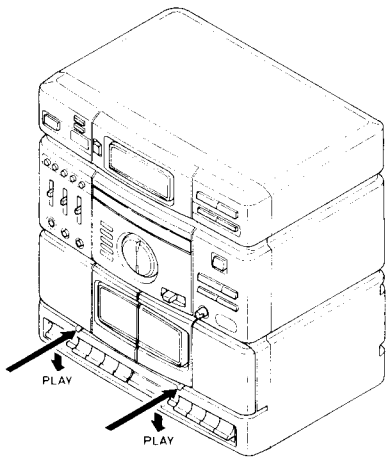
① . Load a test tape (VTT-703 etc. : 10kHz) in deck A.

② . Press the PLAY button. (normal playback)

③ . Use a + tip screwdriver to turn the screw for normal azimuth adjustment so that the left and right outputs are maximized at the same phase during normal playback.

(2). DECK B

① . Repeat procedure for deck B.

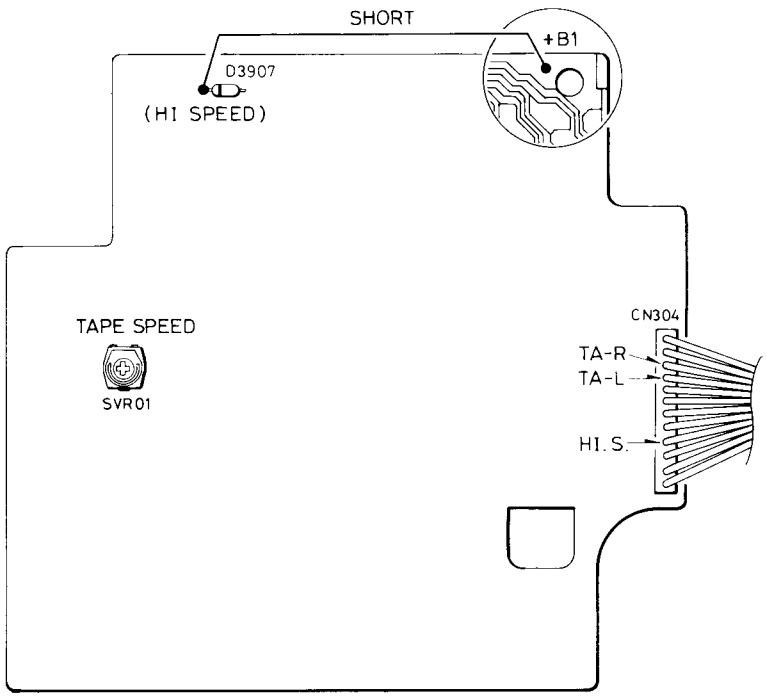


2. Tape Speed Adjustment

STEP	SPEED	DECK	TEST TAPE	SVR	TAPE COUNTER	REMARKS
1	Normal	DECK A	MTT-111N 3000Hz	SVR01	2995 ~ 3005 Hz	Memorize the tape speed on counter. Confirm that the speed of DECK B is in -40 ~ 70 Hz against DECK A.
2	Normal	DECK B			-40 ~ 70 Hz	

Notes :
1. For making adjustment of step 1, set the DECK B mechanism is record made with C-60 blank cassette tape.
2. Adjustment should be made at the ending portion of the tape.
3. Confirm the indication of the tape speed for 2 second after adjustment has been made and adjusting driver has been removed from SVR on the TAPE DECK AMPLIFIER P. C. Board.
4. For adjustment, use the screwdriver with isolated tip from grip.
5. For high speed check, short the test points (High-SPEED) to chassis ground on the TAPE DECK AMPLIFIER P. C. Board, (Test Tape is TCW-211) and confirm that the speed of DECK B is in -40 ~ 70 Hz against DECK A.

3. Parts Location

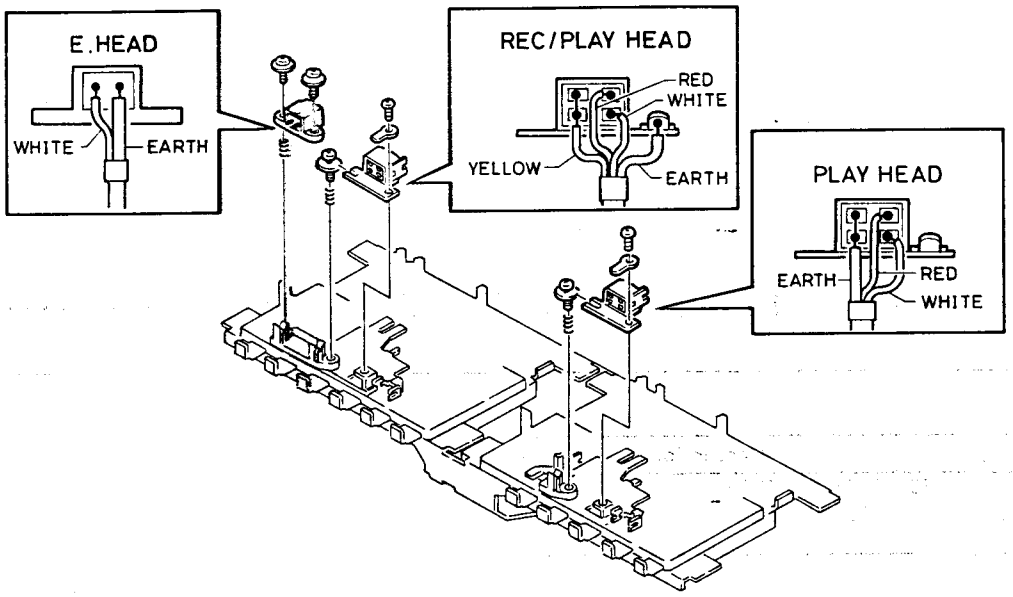


REPLACEMENT OF TAPE DECK MECHANISM

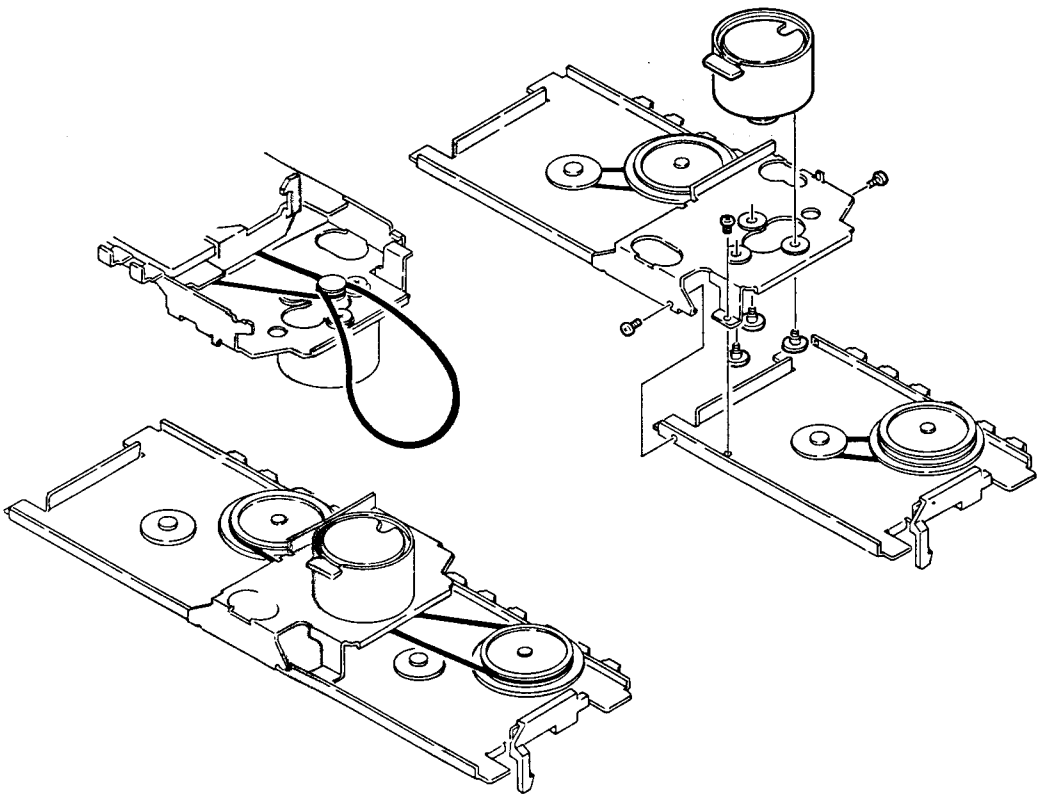
4. Torque Measurements

ITEM	TAKE-UP TORQUE	BACK TENSION	TAPE TENSION
Test cassette	PLAY : TW-2111 F.FWD / REW : TW-2231	PLAY :TW-2111 REW:Torque Gage	Driving power cassette: TW-2412
PLAY	30 ~ 60 gr.cm	2.0 ~ 4.5 gr.cm	> 60g
F.FWD	55 ~ 120 gr.cm	-	
REW	55 ~ 120 gr.cm	-	

5. Replacement of Head



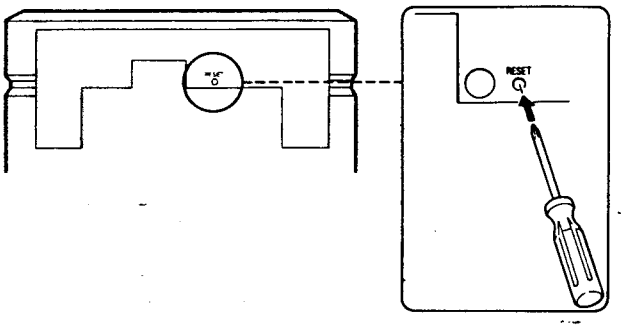
6. Replacement of Motor and Belt



OPERATING THE RESET SWITCH

This unit is provided with a reset switch on the rear panel. The reset switch serves to initialize the microprocessor in the each sections which controls the CD, TUNER, TAPE DECK and etc block. If the unit is to be serviced or key input is not acknowledged even when the CD, TUNER, TAPE DECK and etc operation buttons are pressed, press the RESET switch and initialize the microprocessor following the step below.

1). Disconnect the AC power cord from the power outlet.
2). Keep the RESET switch depressed for 60 seconds.
(The backed up electrolytic capacitor is discharged by keeping the RESET switch depress.)
3). Reconnect the AC power cord to the power outlet.
4). Press the CD, TUNER, TAPE DECK and etc. operations, and check their operation.



REMOTE CONTROLLER UNIT

PARTS LIST

REMOCON (RB-D5)

Ref. No.	Part No.	Description
	614 252 1373	ASSY,REMOCON
	614 235 9433	LID,BATTERY

SPEAKER UNIT

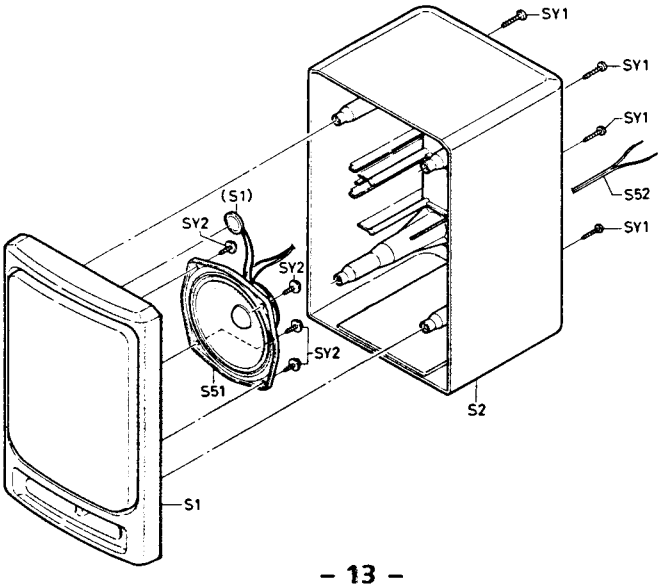
PARTS LIST & EXPLODED VIEW

SPEAKER (SX-D5)

Ref. No.	Part No.	Description
S1	614 248 0052	ASSY,CABINET,FRONT (WITH
	(419 002 0206)	PIEZO BUZZER FOR TWEETER SPEAKER)
S2	614 248 0045	ASSY,CABINET,REAR
S51	614 251 5860	SPEAKER,D12 5W 4Ω,WOOFER
S52	614 022 8755	WIRE,LEAD,SPEAKER

FIXING PARTS (SPEAKER)

Ref. No.	Part No.	Description
SY1	411 021 4906	SCR S-TPG BIN 3X20,CABINET
SY2	411 020 8905	SCR S-TPG BIN+FLG 3X20, WOOFER SPEAKER



VOLTAGES OF IC (CD SECTION)

(Unit : Volt)

IC101 LA9210M

Measuring Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Stop Mode	0	0	2.48	2.54	2.51	2.51	2.48	2.50	2.50	2.60	2.57	2.57	2.50	2.50	2.49	2.07
Play Mode	0	0	Fluc	Fluc	Fluc	Fluc	Fluc	2.50	2.50	Fluc	Fluc	Fluc	Fluc	Fluc	Fluc	Fluc
Measuring Pin No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Stop Mode	2.42	2.50	2.51	2.51	2.57	2.62	2.51	*2.41	0	2.51	2.36	2.15	2.48	2.51	2.49	0
Play Mode	Fluc	Fluc	Fluc	Fluc	Fluc	Fluc	Fluc	Fluc	0	Fluc	Fluc	Fluc	Fluc	Fluc	Fluc	0
Measuring Pin No.	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
Stop Mode	2.50	2.50	2.49	5.01	4.97	0	0	0.08	0	0	0	0	5.00	5.00	4.13	4.14
Play Mode	Fluc	Fluc	Fluc	5.02	Fluc	Fluc	Fluc	Fluc	0	Fluc	Fluc	Fluc	Fluc	Fluc	Fluc	Fluc
Measuring Pin No.	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
Stop Mode	4.12	0	0	0	2.58	2.33	2.33	5.01	2.52	2.55	2.57	3.86	2.81	5.00	5.00	0
Play Mode	Fluc	Fluc	Fluc	Fluc	Fluc	Fluc	Fluc	5.02	Fluc	Fluc	Fluc	Fluc	Fluc	Fluc	Fluc	0
Measuring Pin No.	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
Stop Mode	0	1.91	1.46	1.44	1.25	1.21	0	1.24	1.58	4.40	0	4.50	5.01	1.57	1.58	1.59
Play Mode	0	Fluc	Fluc	Fluc	Fluc	Fluc	0	Fluc	Fluc	Fluc	Fluc	Fluc	5.02	Fluc	Fluc	1.68

IC102 BA6296FP

Measuring Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Stop Mode	3.32	3.32	2.49	2.51	6.81	5.03	4.42	0	2.51	2.61	3.31	3.31	0	6.84	0.10	0.18
Measuring Pin No.	17	18	19	20	21	22	23	24	25	26	27	28				
Stop Mode	3.31	3.31	2.57	2.51	7.46	7.46	2.51	2.51	2.50	3.31	3.31	0				

Fluc : Fluctuation

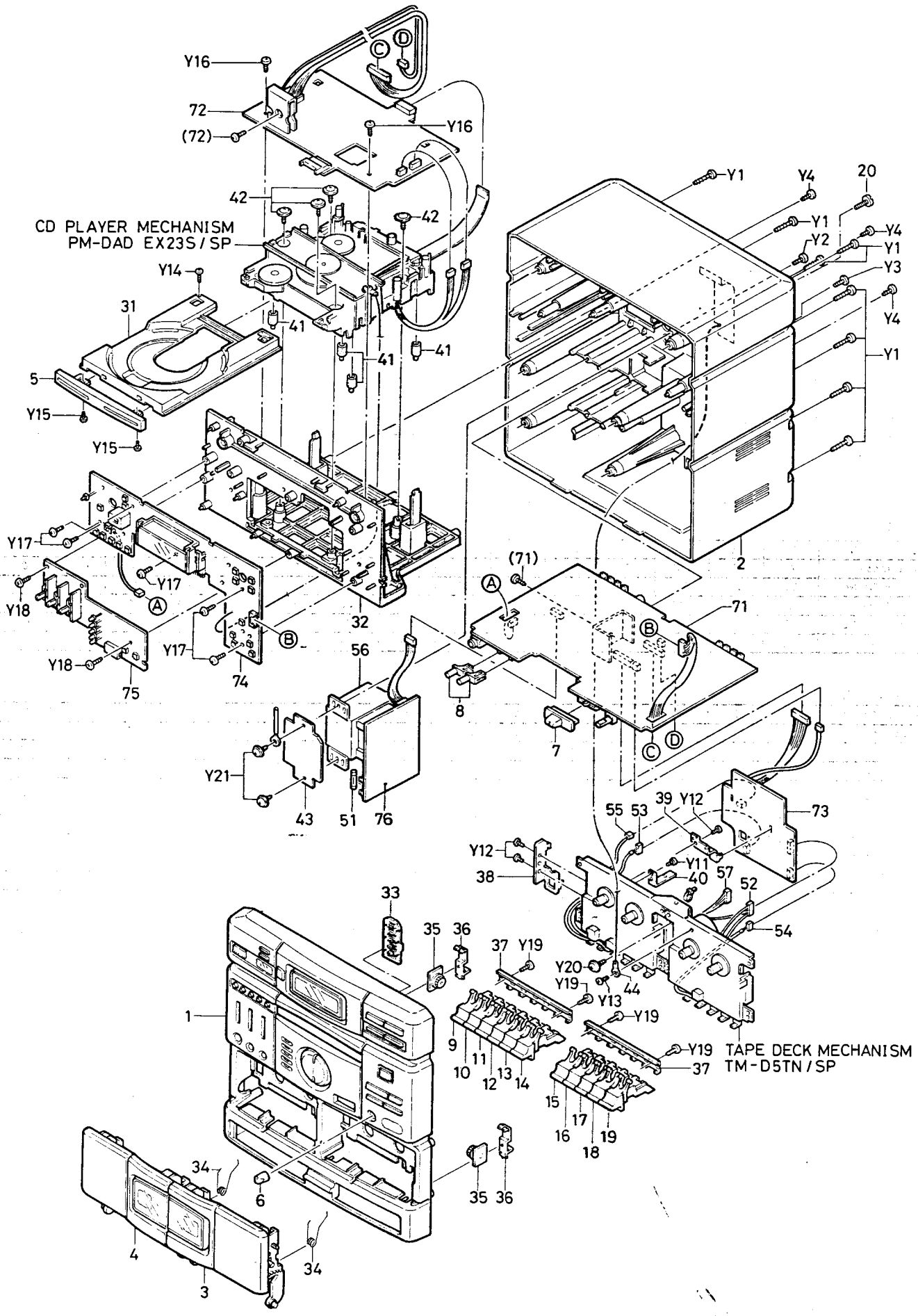
IC103 μPD75112

Measuring Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Stop Mode	4.72	4.84	0	0	0	4.84	4.85	2.53	2.00	4.84	4.84	4.84	0	4.84	0	0
Measuring Pin No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Stop Mode	0	0	4.80	0	0	4.85	0	4.74	4.74	0	4.67	4.84	0.01	4.81	0	4.82
Measuring Pin No.	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
Stop Mode	4.82	4.82	5.02	5.02	0	0	0	0	0.01	4.85	4.85	0.09	4.97	4.97	4.97	4.97
Measuring Pin No.	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
Stop Mode	5.02	0	5.02	4.86	4.86	0	0	4.86	4.86	4.86	0	0	4.86	0	4.85	4.85

IC104 LC7861NE

Measuring Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Stop Mode	0	2.25	2.18	2.52	0	2.39	2.48	2.58	0	0	0	4.97	0	2.12	4.13	4.13
Play Mode	0	2.25	2.18	2.57	0	2.49	2.49	2.63	0	1.40	0	0	0	2.12	4.13	0
Measuring Pin No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Stop Mode	0.46	2.45	0	5.00	5.01	0	0	5.01	0	0	0	0	0	0	1.05	1.05
Play Mode	0.46	2.45	5.00	0	5.01	0	0	5.00	0	0	0	0	4.92	0	1.05	1.05
Measuring Pin No.	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
Stop Mode	2.50	2.08	0	2.62	0	2.50	2.53	1.79	2.50	4.56	2.60	0.12	2.28	0.02	2.49	0
Play Mode	2.50	2.09	0.59	2.62	0.61	2.50	2.55	1.68	2.50	0	2.60	0.12	0.02	0.12	2.50	0
Measuring Pin No.	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
Stop Mode	2.50	0	0	0	4.85	4.85	4.85	0	4.98	2.20	2.45	4.98	0	0	2.37	2.45
Play Mode	2.50	0.30	0.02	0.04	0	4.81	4.86	0	0.02	2.23	2.45	4.99	0.01	0	2.39	2.44

EXPLODED VIEW (CABINET & CHASSIS)



PARTS LIST

PRODUCT SAFETY NOTICE

Each precaution in this manual should be followed during servicing. Components identified with the IEC symbol ⚠ in the parts list and the schematic diagram designate components in which safety can be of special significance. When replacing a component identified ⚠, use only the replacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the parts list in this manual. Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.

CAUTION: Regular type resistors and capacitors are not listed. To know those values, refer to the schematic diagram.

N.S.P : Not available as service parts.

PACKING

Ref. No.	Part No.	Description
	614 254 6826	INNER CARTON
	614 248 0601	PAD,TOP L.R.
	614 248 0618	PAD,BOTTOM L.R.
	614 228 0331	SHEET,SET
	614 232 3366	SHEET,SP BOX
	614 176 3170	INNER POLYE COVER,INST M.
	614 236 0132	POLY COVER,REMOCON
	614 231 6832	LABEL,SAFETY,CLASS 1,LASER
41	614 195 6978	RUBBER CUSHION, CD MECHANISM,FLOAT
42	412 003 1708	SCREW,SPECIAL,CD MECHA,FIX
43	614 246 5745	SHIELD,POWER TRANSFORMER
44	614 051 9785	LUG,EARTH
	614 129 2496	FIXER,LEAD RETAINER
	614 125 6443	CUSHION,DECK MECHA LEAD FIX
	614 212 8343	LABEL,SAFETY,PICKUP,LASER

ACCESSORIES

Ref. No.	Part No.	Description
	614 251 8335	INSTRUCTION MANUAL
	⚠614 250 6578	POWER CORD,AC
	614 234 5511	LOOP ANTENNA,AM
	614 232 6671	ANTENNA,FM

FIXING PARTS

Ref. No.	Part No.	Description
Y01	411 021 4906	SCR S-TPG BIN 3X20, CABINET/REAR
Y02	411 021 3701	SCR S-TPG BIN 3X10, PHONO·SP TERMINAL
Y03	411 021 3701	SCR S-TPG BIN 3X10, AC SOCKET
Y04	411 021 3701	SCR S-TPG BIN 3X10,BRACKET FOR CD MECHANISM FIXING
Y11	411 025 1901	SCR S-TPG PAN 2X3, REC SPRING PLATE
Y12	411 028 2905	SCR S-TPG PAN 2X4, DECK MECHA/BRACKET-E
Y13	411 028 5500	SCR S-TPG PAN 2.6X4, DECK MECHA EARTH
Y14	411 022 8408	SCR S-TPG PAN 2X8,CD TRAY
Y15	411 021 1202	SCR S-TPG BIN 2X8, CD ESCUTCHEON
Y16	411 021 3503	SCR S-TPG BIN 3X10,CD PCB
Y17	411 021 3503	SCR S-TPG BIN 3X10, FRONT PCB
Y18	411 021 3503	SCR S-TPG BIN 3X10, GRAPHIC EQUALIZER PCB
Y19	411 021 3503	SCR S-TPG BIN 3X10, MECHA BUTTON/BRACKET-E
Y20	411 020 8905	SCR S-TPG BIN 3X10, DECK MECHANISM
Y21	411 020 9100	SCR S-TPG BRZ+FLG 3X12,P.T.

CABINET

Ref. No.	Part No.	Description
1	614 251 7628	ASSY,CABINET,FRONT
2	614 251 7680	ASSY,CABINET,REAR
3	614 248 0069	ASSY,LID,CASSETTE,DECK A
4	614 248 0076	ASSY,LID,CASSETTE,DECK B
5	614 248 0182	ESCUTCHEON,CD TRAY,FRONT
6	614 239 0405	KNOB,ROTARY,BALANCE
7	614 213 3019	KNOB,SLIDE,FUNCTION
8	614 248 0397	BUTTON,DUBB,BASS
9	614 248 0335	BUTTON,DECK B,REC
10	614 248 0328	BUTTON,DECK B,PLAY
11	614 248 0311	BUTTON,DECK B,REW
12	614 248 0304	BUTTON,DECK B,FWD
13	614 248 0298	BUTTON,DECK B,STOP/EJECT
14	614 248 0281	BUTTON,DECK B,PAUSE
15	614 248 0274	BUTTON,DECK A,PLAY
16	614 248 0267	BUTTON,DECK A,REW
17	614 248 0250	BUTTON,DECK A,FWD
18	614 248 0243	BUTTON,DECK A,STOP/EJECT
19	614 248 0236	BUTTON,DECK A,PAUSE
20	412 003 2804	SCREW,SPECIAL,PHONO GND

CHASSIS

Ref. No.	Part No.	Description
31	614 238 1694	TABLE,LOADING,CD TRAY
32	614 248 0410	MOUNT-M,CD MECHA,FIX
33	614 248 1516	WINDOW,LED COVER
34	614 248 0465	SPRING,WIRE,CASSETTE,OPEN
35	614 244 8199	ASSY,GEAR,LID CASSETTE
36	614 248 0427	MOUNT-M,GEAR SUPPORT
37	614 225 1744	BRACKET-M,MECHA BUTTON
38	614 237 3927	BRACKET-E,DECK MECHA,SIDE
39	614 238 1502	BRACKET-E,DECK MECHA,TOP
40	614 216 9346	SPRING,PLATE,REC

ELECTRICAL PARTS

Ref. No.	Part No.	Description
51	⚠423 016 9407	FUSE 250V 0.25A,F901
52	614 251 3279	ASSY,CONNECTOR-S,6P,MECHA
53	614 253 8463	ASSY,CONNECTOR-S,4P, R/P HEAD
54	614 251 1404	ASSY,CONNECTOR-S,3P,P HEAD
55	614 251 1411	ASSY,CONNECTOR-S,2P,E HEAD
56	⚠614 256 4820	POWER TRANSFORMER,PT401
57	614 238 7146	PLUG,4P WITH LEAD,MOTOR

PARTS LIST

MAIN (TUNER / AMPLIFIER) P. C. BOARD ASSY

Ref. No.	Part No.	Description
71	614 256 4769	ASSY,PCB,TUNER/AMP
	614 232 6404	TERMINAL,GROUND,PHONO
	⚠614 229 8107	HEAT SINK,FOR IC401
	⚠614 203 7362	HEAT SINK,FOR IC404
	411 021 6405	SCR S-TPG BIN 3X8,FOR IC401
	411 021 6405	SCR S-TPG BIN 3X8,FOR IC404
BPF21	614 228 4704	FILTER,LC,FM,BPF
C2146	403 106 1603	NP-ELECT 1U Q 50V
C4000	⚠403 200 0205	ELECT 2200U M 35V
C4009	⚠403 200 0205	ELECT 2200U M 35V
C4743	403 200 6900	ELECT 1000U M 16V
C4744	403 058 6008	POLYESTER 0.15U M 50V
C4843	403 200 6900	ELECT 1000U M 16V
C4844	403 058 6008	POLYESTER 0.15U M 50V
C4934	403 200 6900	ELECT 1000U M 16V
CF201	614 231 0199	FILTER,FM,CERAMIC,10.7MHZ
CF202	614 231 0199	FILTER,FM,CERAMIC,10.7MHZ
CF203	614 246 0832	FILTER,XTAL,FM,10.7MHZ
CN201	614 254 6673	ASSY,CONNECTOR-S,8P,FRONT
CN202	614 249 0617	TERMINAL,FM/AM ANT
or	614 252 7962	TERMINAL,FM/AM ANT
CN401	614 227 0004	SOCKET,9P,TO G.EQ
CN403	614 017 2539	PLUG,2P,TO DECK
CN404	614 017 2638	PLUG,12P,TO DECK
CN405	614 017 2614	PLUG,10P,TO CD
CN406	614 017 2553	PLUG,4P,TO CD
CN407	614 017 2119	PLUG,4P,TO POWER SUPPLY
CN408	614 017 2546	PLUG,3P,TO FRONT
CN410	614 035 2702	SOCKET,2P,RCA TYPE,VIDEO
CN411	614 017 8685	TERMINAL,4P,SPEAKER OUT
CN412	614 248 1738	JACK,PHONES
D2101	407 007 9904	DIODE GMA01
or	407 012 5809	DIODE 1SS176
or	407 012 4406	DIODE 1SS133
D2102	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
D2103	407 157 8109	VARACTOR DIODE SVC211-B
D2104	407 157 8109	VARACTOR DIODE SVC211-B
D2105	407 007 9904	DIODE GMA01
or	407 012 5809	DIODE 1SS176
or	407 012 4406	DIODE 1SS133
D2106	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
D2107	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
D4001	⚠407 008 0801	DIODE GP-15
D4002	⚠407 008 0801	DIODE GP-15
D4003	⚠407 008 0801	DIODE GP-15
D4004	⚠407 008 0801	DIODE GP-15
D4005	⚠407 004 9105	DIODE DSF10C
D4006	⚠407 004 9105	DIODE DSF10C
D4007	⚠407 004 9105	DIODE DSF10C
D4008	⚠407 004 9105	DIODE DSF10C
D4920	407 012 4406	DIODE 1SS133
or	407 007 9904	DIODE GMA01
D4921	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
D4922	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
D4923	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
D4930	407 012 4406	DIODE 1SS133
or	407 007 9904	DIODE GMA01
D4931	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
D4932	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
IC201	409 049 2103	IC TA7358P
IC202	409 293 8708	IC LA1830-AUD
IC203	409 066 7600	IC LM7001
IC401	⚠409 295 7402	IC TA8229K
IC402	409 053 0409	IC TC9153AP
IC404	⚠409 027 1005	IC L780S12
IC405	⚠409 027 1005	IC L780S12
IC409	409 016 7902	IC LA3161
ICP10	⚠614 205 2921	IC PROTECTOR ICP-N38
ICP11	⚠614 205 2921	IC PROTECTOR ICP-N38
L2101	614 229 9692	INDUCTOR,AIR,FM ANT COIL
L2102	614 248 0557	INDUCTOR,AIR,FM OSC COIL
L2103	614 028 6731	FILTER,8.2UH
L2104	614 028 6748	FILTER,10UH
Q2101	405 012 5904	TR 2SC1923-Y
Q2102	405 018 7902	TR 2SC380TM-O
Q2103	405 067 0800	TR RN2207
Q2104	405 125 4900	TR RN1208
Q2105	405 125 4900	TR RN1208
Q2106	405 125 4900	TR RN1208
Q2107	405 125 4900	TR RN1208
Q2108	405 012 2002	TR 2SC1815-GR
or	405 020 7204	TR 2SC945A-K
Q2109	405 012 2002	TR 2SC1815-GR
or	405 020 7204	TR 2SC945A-K
Q2110	405 067 0800	TR RN2207
Q2111	405 067 0800	TR RN2207
Q4730	405 020 7204	TR 2SC945A-K
or	405 012 2002	TR 2SC1815-GR
Q4732	405 020 7204	TR 2SC945A-K
or	405 012 2002	TR 2SC1815-GR
Q4830	405 020 7204	TR 2SC945A-K
or	405 012 2002	TR 2SC1815-GR
Q4832	405 020 7204	TR 2SC945A-K
or	405 012 2002	TR 2SC1815-GR
Q4920	405 020 7204	TR 2SC945A-K
or	405 012 2002	TR 2SC1815-GR
Q4921	405 020 7204	TR 2SC945A-K
or	405 012 2002	TR 2SC1815-GR
Q4930	405 020 7204	TR 2SC945A-K
or	405 012 2002	TR 2SC1815-GR
Q4931	405 020 7204	TR 2SC945A-K
or	405 012 2002	TR 2SC1815-GR
Q4944	405 125 4900	TR RN1208
R2127	⚠401 025 7409	CARBON 220 JA 1/6W
R2128	⚠401 025 7409	CARBON 220 JA 1/6W
R4929	⚠401 012 4503	CARBON 100 JA 1/4W
S4000	614 019 1677	SWITCH,FUNCTION
S4003	614 247 6840	SWITCH,BASSX
S4004	614 247 6840	SWITCH,BEAT
T2101	614 248 4432	FILTER,AM,IF,CERAMIC
TU201	614 249 0778	TUNER,AM,BLOCK COIL
VR401	614 248 1752	VR,ROTARY,100K OHM,BALANCE
X2101	614 234 0486	RESONATOR,7.2MHZ,FOR IC202
or	614 240 1118	RESONATOR,7.2MHZ,FOR IC202
X2102	614 246 0870	RESONATOR,FM MPX VCO

CD MAIN P. C. BOARD ASSY

Ref. No.	Part No.	Description
72	614 256 4745	ASSY,PCB,CD
	614 203 7362	HEAT SINK,FOR Q132
	411 021 6405	SCR S-TPG BIN 3X8,FOR Q132

Ref. No.	Part No.	Description
C1302	403 196 4102	ELECT 1000U M 6.3V
C1321	403 196 9602	DL-ELECT 0.047F Z 5.5V
C1605	403 196 4102	ELECT 1000U M 6.3V
CN101	614 227 7706	SOCKET,13P,PICK-UP
CN102	614 017 2553	PLUG,4P,CD MECHA,MOTOR
CN103	614 017 2546	PLUG,3P,CD MECHA,SWITCH
CN104	614 017 2553	PLUG,4P,TEST PIN,TP1-TP4
CN105	614 254 6666	ASSY,CONNECTOR-S,4P,TO MAIN
CN106	614 208 2379	SOCKET,10P(BOARD TO BOARD), TO FRONT
CN107	614 254 6680	ASSY,CONNECTOR-S,10P, TO MAIN
D1301	407 012 4406	DIODE 1SS133
D1311	407 012 4406	DIODE 1SS133
D1312	407 012 4406	DIODE 1SS133
D1313	⚠407 053 6704	ZENER DIODE MTZ5.6B
D1314	407 012 4406	DIODE 1SS133
D1601	⚠407 053 8302	ZENER DIODE MTZ8.2A
D1602	407 012 4406	DIODE 1SS133
IC101	409 245 4802	IC LA9210M
IC102	409 267 8109	IC BA6296FP
IC103	410 167 3309	IC UPD75112GF-796-3BE
IC104	409 262 6209	IC LC7861NE
IC105	409 285 0307	IC TDA1311T
IC106	⚠409 026 8500	IC L78M05
or	⚠409 057 6407	IC UPC78M05H
or	⚠409 169 7804	IC NJM78M05FA
ICP01	⚠614 205 2891	IC PROTECTOR ICP-N15
ICP02	⚠614 234 9106	IC PROTECTOR ICP-N05
L1301	614 028 4133	FILTER,CHOKE,10UH
L1401	614 028 4133	FILTER,CHOKE,10UH
Q101	405 006 1905	TR 2SA933S-S
Q102	405 011 8609	TR 2SC1740S-S
Q105	405 011 8609	TR 2SC1740S-S
Q106	405 000 3400	TR DTC114TS
Q107	405 000 3400	TR DTC114TS
Q108	405 011 8609	TR 2SC1740S-S
Q109	405 011 8609	TR 2SC1740S-S
Q111	405 006 1905	TR 2SA933S-S
Q112	405 011 8609	TR 2SC1740S-S
Q113	405 006 1905	TR 2SA933S-S
Q114	405 006 1905	TR 2SA933S-S
Q115	405 011 8609	TR 2SC1740S-S
Q116	405 006 1905	TR 2SA933S-S
Q121	405 000 4407	TR DTC124ES
Q122	405 000 4407	TR DTC124ES
Q131	405 009 5207	TR 2SB927-S
Q132	⚠405 077 9008	TR TIP29B
or	⚠405 023 3005	TR 2SD330-E
S1301	614 221 8327	SWITCH,TACT,RESET
SVR11	614 250 7414	POTENTIOMETER,10K OHM(B), TRACKING BALANCE
X101	614 231 2667	RESONATOR,16.93MHZ,FOR IC104
X102	614 215 5561	RESONATOR,CERAMIC,4.19MHZ,FOR IC103

TAPE DECK AMPLIFIER P. C. BOARD ASSY

Ref. No.	Part No.	Description
73	614 248 1332	ASSY,PCB,DECK
C3911	403 059 0708	POLYESTER 0.018U M 50V
C3917	403 062 1105	POLYESTER 0.047U M 50V
CN301	614 017 2546	PLUG,3P,P HEAD
CN302	614 017 2553	PLUG,4P,R/P HEAD
CN303	614 254 6642	ASSY,CONNECTOR-S,2P,TO MAIN
CN304	614 254 6697	ASSY,CONNECTOR-S,12P, TO MAIN
CN305	614 017 2577	PLUG,6P,MECHA
CN306	614 020 6562	SOCKET,4P,TO MOTOR
or	614 223 9223	SOCKET,4P,TO MOTOR
CN307	614 017 2539	PLUG,2P,E-HEAD
D3905	407 012 4406	DIODE 1SS133
or	407 007 9904	DIODE GMA01
D3906	407 012 4406	DIODE 1SS133
or	407 007 9904	DIODE GMA01
D3907	407 012 4406	DIODE 1SS133
or	407 007 9904	DIODE GMA01
IC301	409 251 1000	IC TA8189N
L3901	614 251 1688	TRANS,OSC
Q3702	405 000 3103	TR DTC114ES
Q3802	405 000 3103	TR DTC114ES
Q3902	405 005 2002	TR 2SA733-P
or	405 001 7001	TR 2SA1015-GR
Q3912	405 020 7204	TR 2SC945A-K
or	405 012 2002	TR 2SC1815-GR
Q3916	405 020 7204	TR 2SC945A-K
or	405 012 2002	TR 2SC1815-GR
Q3920	405 020 7402	TR 2SC945A-P
or	405 012 2002	TR 2SC1815-GR
Q3921	405 013 1301	TR 2SC2120-Y
or	405 012 7403	TR 2SC2001-K
S3001	614 243 3256	SWITCH,SLIDE,R/P
SVR01	614 250 7384	SEMI-FIXED V.R,2K OHM(B), TAPE SPEED

FRONT P. C. BOARD ASSY

Ref. No.	Part No.	Description
74	614 256 4752	ASSY,PCB,FRONT
	614 248 0434	MOUNT-M,LCD
	614 248 0120	COVER,LCD
	614 248 0441	SHEET,LCD
	614 217 8935	SWITCH,OPTO CONNECTOR, IR RECEIVE(REMOCON)
CN251	614 017 3871	PLUG,8P,FRONT-MAIN(TUNER)
CN252	614 254 6659	ASSY,CONNECTOR-S,3P, FRONT-MAIN(POWER AMP)
CN253	614 208 2287	PLUG,10P(BOARD TO BOARD), TO CD
D2501	408 006 3702	LED SLZ-1908-05,STAND-BY
D2504	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
IC251	410 167 3408	IC UPD75306GF-257-3B9
L2501	614 028 6861	FILTER,100UH,RIPPLE CANCEL
LCD01	614 248 0564	LCD(LIQUID CRYSTAL DISPLAY)
PL251	614 046 0094	LAMP,12V 0.1A
PL252	614 046 0094	LAMP,12V 0.1A
Q2501	405 001 0200	TR RN1202
S2501	614 220 5631	SWITCH,TACT,BAND
S2502	614 220 5631	SWITCH,TACT,TU/MEMO
S2503	614 220 5631	SWITCH,TACT,FM/MODE
S2504	614 220 5631	SWITCH,TACT,TUNING UP
S2505	614 220 5631	SWITCH,TACT,TUNING DOWN
S2506	614 220 5631	SWITCH,TACT,PRESET UP
S2507	614 220 5631	SWITCH,TACT,REPEAT
S2508	614 220 5631	SWITCH,TACT,CD/MEMO
S2509	614 220 5631	SWITCH,TACT,PLAY/PAUSE
S2510	614 220 5631	SWITCH,TACT,STOP
S2511	614 220 5631	SWITCH,TACT,F.F
S2512	614 220 5631	SWITCH,TACT,REW

Ref. No.	Part No.	Description
S2513	614 220 5631	SWITCH,TACT,OPEN/CLOSE
S2514	614 220 5631	SWITCH,TACT,PRESET DOWN
S2515	614 220 5631	SWITCH,TACT,POWER
S2516	614 220 5631	SWITCH,TACT,RANDOM
S2517	614 220 5631	SWITCH,TACT,EDIT
S2518	614 220 5631	SWITCH,TACT,INTRO
X2501	614 215 5561	RESONATOR,CERAMIC,4.19MHZ, FOR IC2501

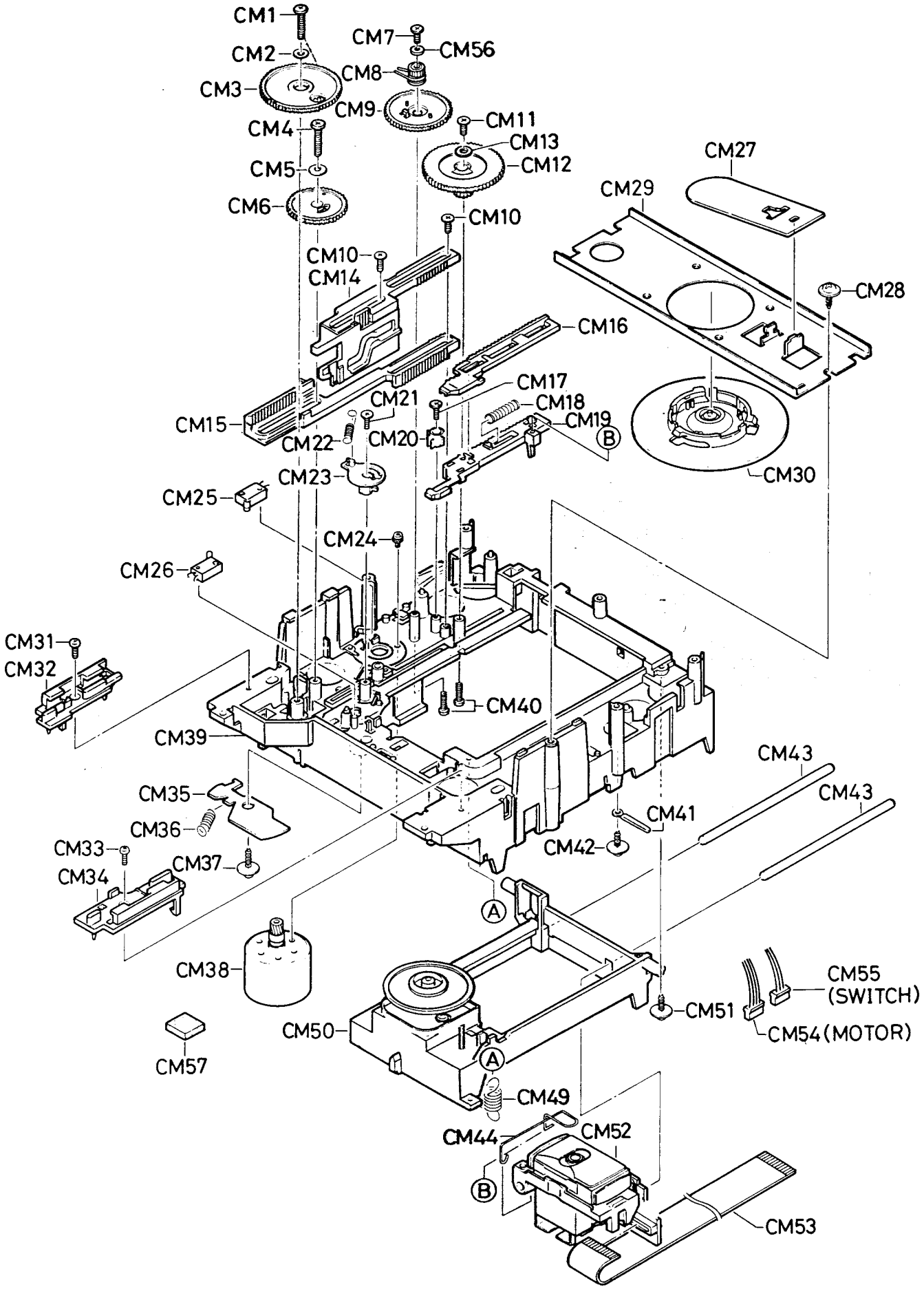
GRAPHIC EQUALIZER P. C. BOARD ASSY

Ref. No.	Part No.	Description
75	614 256 4776	ASSY,PCB,G.EQ
CN409	614 226 9961	PLUG,9P,TO MAIN
D4761	407 012 4406	DIODE 1SS133
or	407 007 9904	DIODE GMA01
D4861	407 012 4406	DIODE 1SS133
or	407 007 9904	DIODE GMA01
D4971	408 018 9501	LED SLZ-181C-26-AB, VOL POSITION 1
D4972	408 018 9501	LED SLZ-181C-26-AB, VOL POSITION 2
D4973	408 018 9501	LED SLZ-181C-26-AB, VOL POSITION 3
D4974	408 018 9501	LED SLZ-181C-26-AB, VOL POSITION 4
D4975	408 018 9501	LED SLZ-181C-26-AB, VOL POSITION 5
D4980	407 012 4406	DIODE 1SS133
or	407 007 9904	DIODE GMA01
D4981	407 012 4406	DIODE 1SS133
or	407 007 9904	DIODE GMA01
IC403	409 020 2900	IC LB1433N
Q4760	405 012 2002	TR 2SC1815-GR
or	405 020 7204	TR 2SC945A-K
Q4761	405 012 2002	TR 2SC1815-GR
or	405 020 7204	TR 2SC945A-K
Q4860	405 012 2002	TR 2SC1815-GR
or	405 020 7204	TR 2SC945A-K
Q4861	405 012 2002	TR 2SC1815-GR
or	405 020 7204	TR 2SC945A-K
S4001	614 220 5631	SWITCH,TACT,VOL UP
S4002	614 220 5631	SWITCH,TACT,VOL DOWN
VR401	614 240 9893	VR,SLIDE,50K OHM(B),300HZ
VR402	614 240 9893	VR,SLIDE,50K OHM(B),1KHZ
VR403	614 240 9893	VR,SLIDE,50K OHM(B),10KHZ

POWER SUPPLY P. C. BOARD ASSY

Ref. No.	Part No.	Description
76	⚠614 256 4783	ASSY,PCB,POWER SUPPLY
	⚠614 254 4839	ASSY,CONNECTOR-S,4P,TO MAIN
	⚠614 208 4540	HOLDER,FUSE,FOR F901
CN420	614 223 9223	SOCKET,4P,TO MAIN
or	614 020 6562	SOCKET,4P,TO MAIN
CN421	⚠614 251 2203	SOCKET,2P,AC

EXPLODED VIEW (CD MECHANISM)

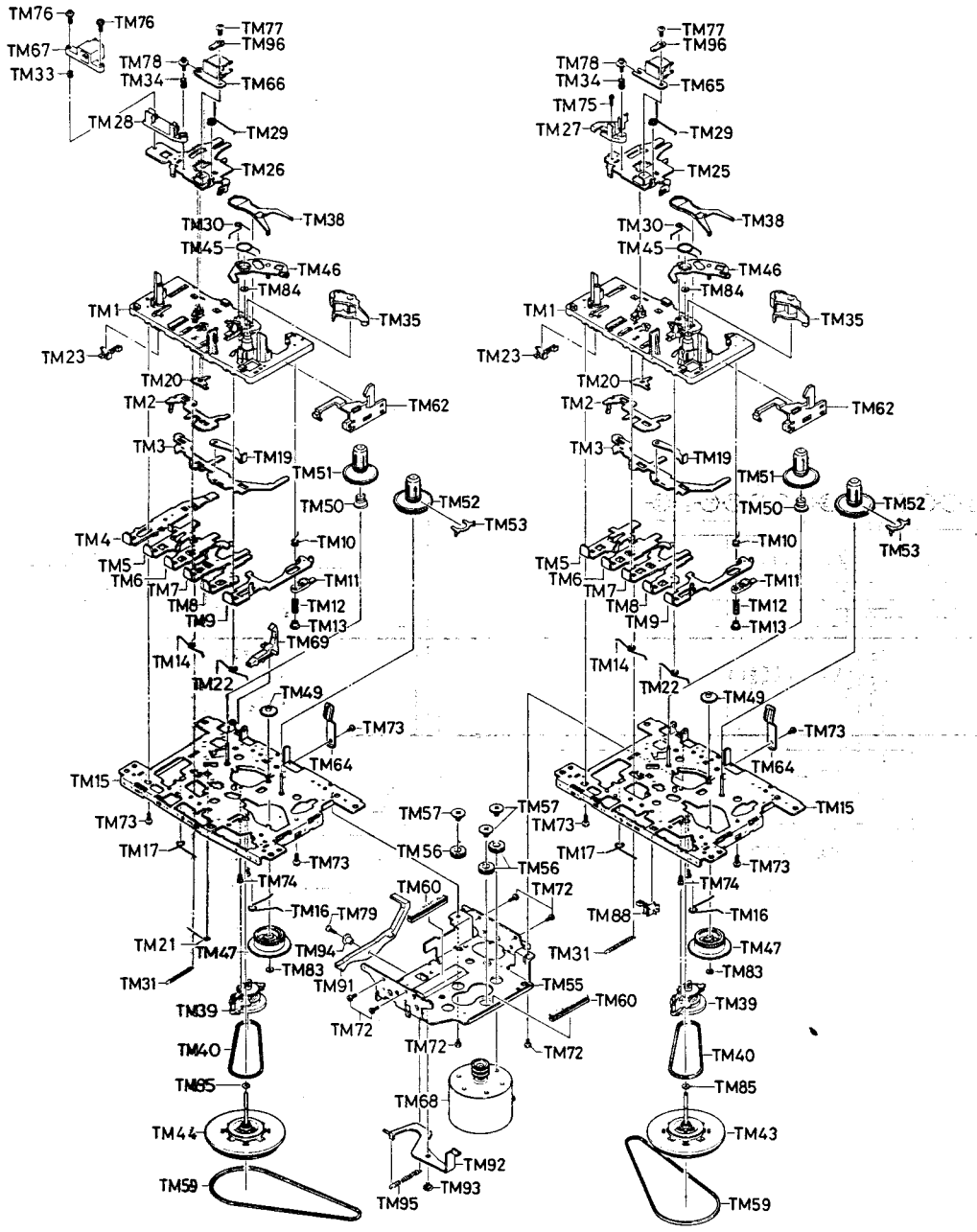


PARTS LIST (CD MECHANISM)

CD MECHANISM (PM-DAD EX23S / SP)

Ref. No.	Part No.	Description
CM01	411 119 8908	SCREW S-TPG PAN 2X14, GEAR FIX
CM02	411 087 4704	WASHER V 2X6X0.4,GEAR FIX
CM03	614 224 2056	GEAR,TRAY MOVE
CM04	411 119 8908	SCREW S-TPG PAN 2X14, GEAR FIX
CM05	411 087 4704	WASHER V 2X6X0.4,GEAR FIX
CM06	614 224 2049	GEAR,TRAY
CM07	411 152 4301	SCREW S-TPG PAN PCS 1.7X6, GEAR FIX
CM08	614 237 9172	ASSY,GEAR,CLUTCH INNER
CM09	614 238 4794	GEAR,CLUTCH OUTER
or	614 243 6455	GEAR,CLUTCH OUTER
CM10	412 031 2104	SCREW,SPECIAL,SLIDE FIX
CM11	411 152 4301	SCREW S-TPG PAN PCS 1.7X6, GEAR FIX
CM12	614 224 1998	GEAR,PICKUP SLED
or	614 241 4651	GEAR,PICKUP SLED
CM13	412 045 4101	WASHER,SPECIAL, PICKUP GEAR FIX
CM14	614 233 6311	SLIDE,BASE UP/DOWN
CM15	614 224 2094	SLIDE,TRAY
CM16	614 224 2018	GEAR,PICKUP RACK UPPER
CM17	412 031 2104	SCREW,SPECIAL,GEAR FIX
CM18	614 225 0884	SPRING,COMP,RACK BACK
CM19	614 224 2001	GEAR,PICKUP RACK LOWER
CM20	614 224 2032	GEAR,BASE/TRAY TIMING
CM21	412 031 2104	SCREW,SPECIAL,GEAR FIX
CM22	614 242 8665	SPRING,TENS,GEAR TENSION
CM23	614 237 8304	GEAR,TIMING
CM24	411 044 7205	SCREW PAN+SW 2X4, SLED MOTOR FIX
CM25	614 018 9223	SWITCH,LIMIT
CM26	614 018 9223	SWITCH,TRAY OPEN
CM27	614 202 5277	SPRING PLATE,CHUCKING
CM28	411 020 9803	SCREW S-TPG BRZ+FLG 3X6, BASE CHASSIS FIX
CM29	614 224 1967	BRACKET-M,CHUCKING
CM30	614 243 2594	ASSY,PULLEY
CM31	411 022 7807	SCREW S-TPG PAN 2X6, BRACKET FIX
CM32	614 224 3176	BRACKET-M,TRAY GUIDE(L)
CM33	411 022 7807	SCREW S-TPG PAN 2X6, BRACKET FIX
CM34	614 224 3183	BRACKET-M,TRAY GUIDE(R)
CM35	614 233 6304	LEVER,BASE
CM36	614 226 5536	SPRING,COMP,BASE LEVER MOVE
CM37	411 020 9902	SCREW S-TPG BRZ+FLG 3X8, LEVER FIX
CM38	614 225 4820	ASSY,MOTOR,LOADING/SLED
CM39	614 241 5764	CHASSIS,LOADING
or	614 242 8641	CHASSIS,LOADING
CM40	412 031 2104	SCREW,SPECIAL, BOSS REINFORCEMENT
CM41	614 129 9136	LUG,WIRE DRESS
CM42	411 021 5705	SCREW S-TPG BIN 3X6, LUG FIX
CM43	614 230 0411	SHAFT,PICKUP RAIL
CM44	614 229 4529	SPRING,WIRE,PICKUP BACK
CM49	614 228 5084	SPRING,TENS,BASE PULL UP
CM50	614 247 1950	ASSY,CHASSIS,BASE, WITH SPINDOLE MOTOR + TURN-TABLE,SERVICE ONLY
CM51	411 020 9803	SCREW S-TPG BRZ+FLG 3X6, CHUCK BRACKET FIX
CM52	614 239 1303	PICKUP,LASER,PLASTIC, (SF-P1PS)
or	614 231 6047	PICKUP,LASER,ALUMINUM, (SF-90PS)
CM53	614 251 6522	CORD,13P,PICKUP
CM54	614 246 2959	ASSY,CONNECTOR-S,4P, SPINDLE/SLED MOTOR
or	614 246 2966	ASSY,CONNECTOR-S,4P, SPINDLE/SLED MOTOR
CM55	614 246 2973	ASSY,CONNECTOR-S,3P, LIMIT/TRAY OPEN SWITCH
or	614 246 2980	ASSY,CONNECTOR-S,3P, LIMIT/TRAY OPEN SWITCH
CM56	412 014 2800	WASHER,SPECIAL,GEAR FIX
CM57	614 125 6528	CUSHION,MOTOR LEAD FIX

EXPLODED VIEW (TAPE DECK MECHANISM)

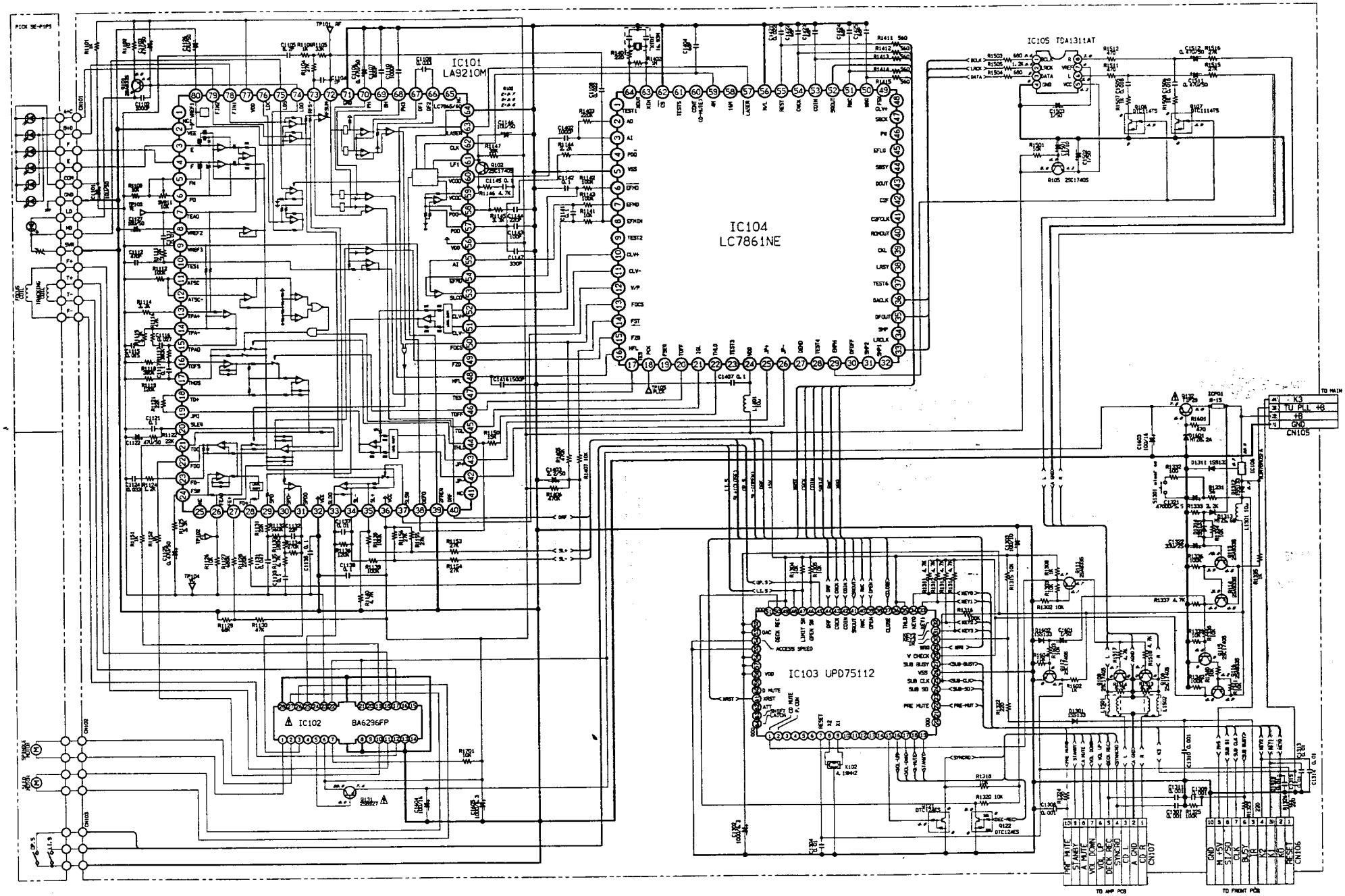


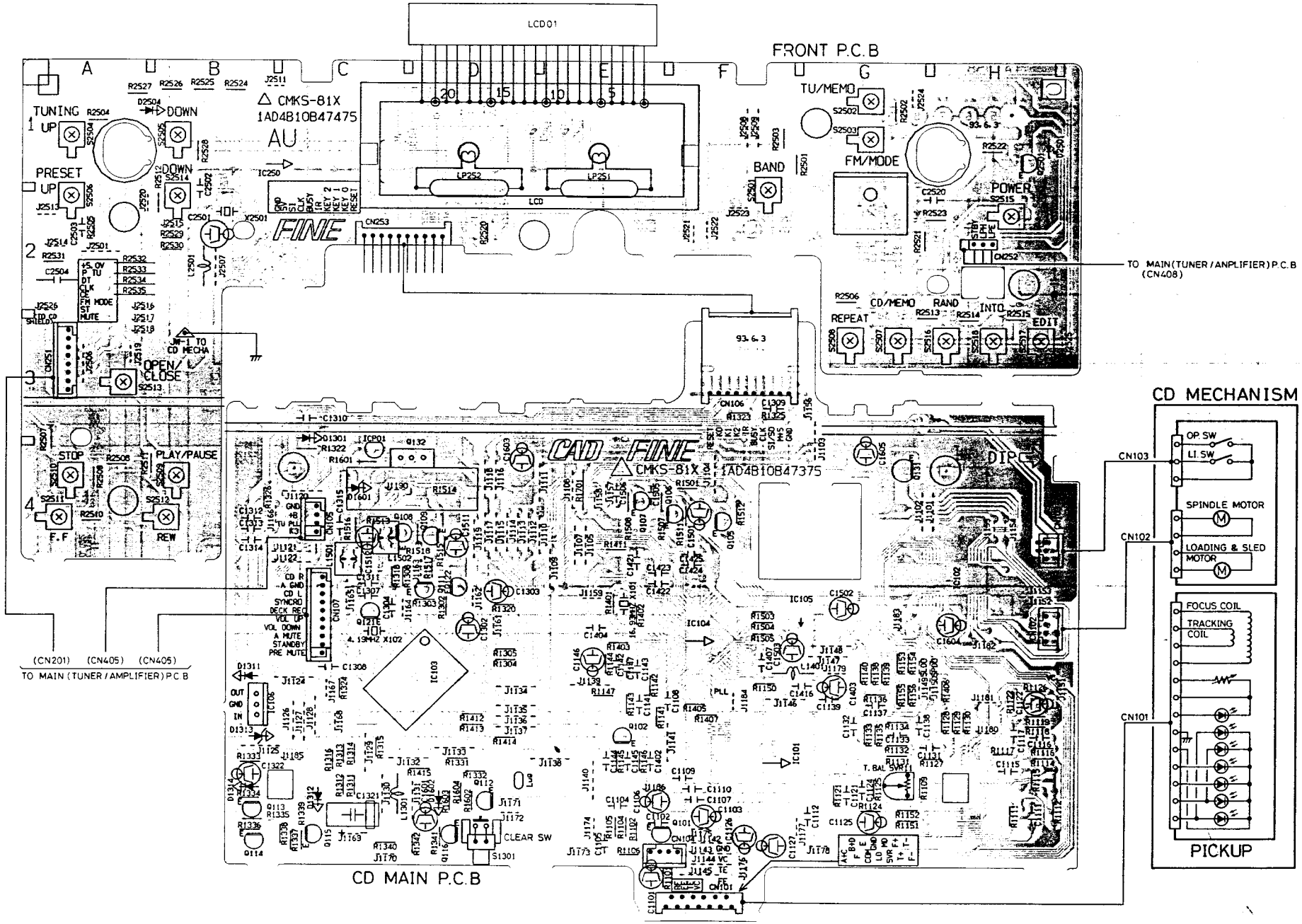
PARTS LIST (TAPE DECK MECHANISM)

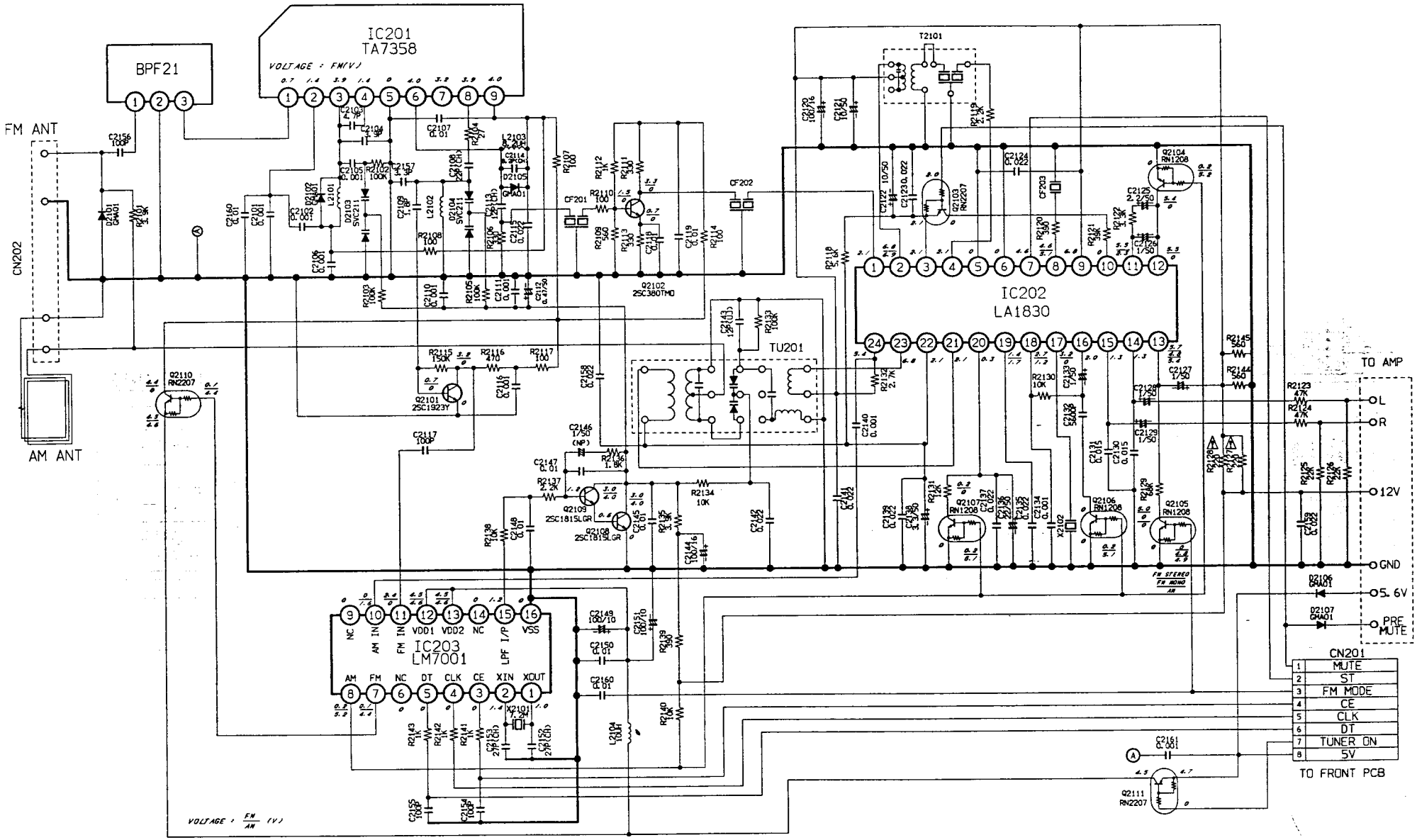
TAPE DECK MECHANISM (TM-D5TN / SP)

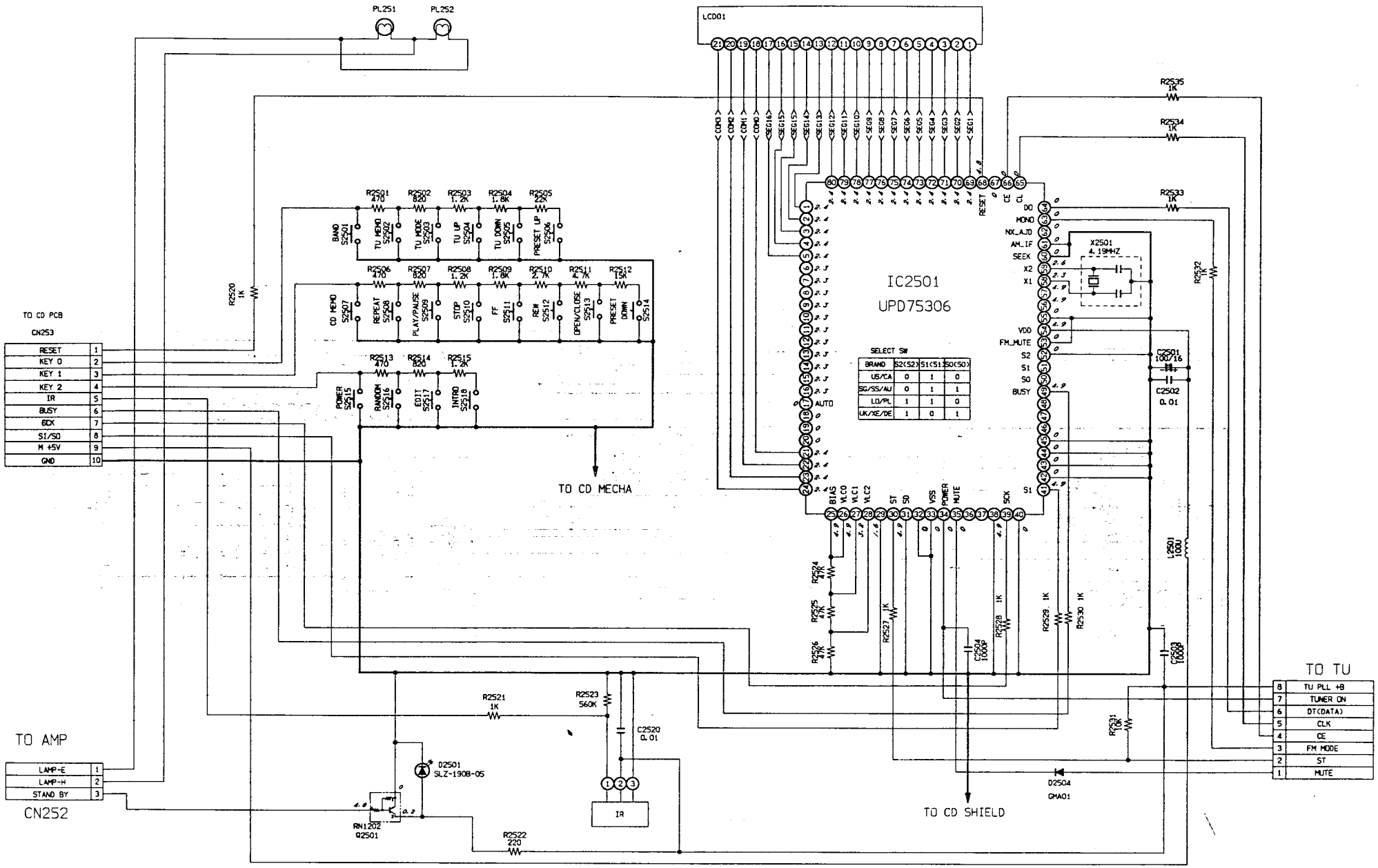
Ref. No.	Part No.	Description
TM01	614 067 3258	ASSY,SUB CHASSIS,BASE METAL
TM02	614 139 1137	SLIDE,SWITCH ACTUATOR
TM03	614 139 1120	SLIDE,PUSH BUTTON ACTUATOR
TM04	614 196 0500	LEVER,REC BUTTON
TM05	614 196 0555	LEVER,PLAY BUTTON
TM06	614 196 0517	LEVER,RWD BUTTON
TM07	614 196 0524	LEVER,FF BUTTON
TM08	614 196 0531	LEVER,STOP BUTTON
TM09	614 208 0313	LEVER,PAUSE BUTTON
TM10	614 152 1244	SPRING,WIRE,PAUSE CONTROL
TM11	614 208 0320	LEVER,PAUSE
TM12	614 151 7186	SPRING,COIL,PAUSE LEVER
TM13	614 129 0669	BOSS,PAUSE STOPPER
TM14	614 152 1251	SPRING,WIRE,BUTTON LEVER A
TM15	614 067 2770	ASSY,CHASSIS,TAPE MECHANISM
TM16	614 152 1275	SPRING,WIRE,EJECT ACTUATOR
TM17	614 152 1282	SPRING,WIRE,PLAY/STOP LEVER
TM19	614 140 1539	LEVER,EJECT KICK
TM20	614 129 0676	BOSS,REC/PLAY STOPPER
TM21	614 152 1305	SPRING,WIRE,REC BUTTON, DECK B
TM22	614 152 1268	SPRING,WIRE,BUTTON LEVER B
TM23	614 024 1693	SWITCH,LEAF,PLAY
TM25	614 211 6944	SLIDE,HEAD PANEL,DECK A
TM26	614 210 6822	SLIDE,HEAD PANEL,DECK B
TM27	614 146 5111	BRACKET,TAPE GUIDE,HEAD BASE,DECK A
TM28	614 196 0470	BRACKET,HEAD PANEL
TM29	614 210 3432	SPRING,WIRE,PANEL(P)
TM30	614 152 1299	SPRING,WIRE,MAIN CONTROL
TM31	614 151 4703	SPRING,COIL,PLAY BUTTON LEVER(S)
TM33	614 151 5090	SPRING,COIL,ERASE HEAD, DECK B
TM34	614 151 7162	SPRING COIL,AZIMUTH
TM35	614 210 3302	ASSY,LEVER, PINCH ROLLER,ARM A
TM38	614 140 1614	LEVER,SENSING
TM39	614 069 2273	ASSY,PULLEY,REVERSE/FORWARD
TM40	614 195 5087	BELT,SQUARE,REVERSE/FORWARD
TM43	614 196 0197	ASSY,FLYWHEEL DISK,DECK A
TM44	614 068 1871	ASSY,FLYWHEEL DISK,DECK B
TM45	614 151 8312	SPRING,PLATE,GEAR
TM46	614 070 0916	ASSY,LEVER,GEAR PLATE
TM47	614 134 9053	GEAR,CAM
TM49	614 134 9046	GEAR,FAST FORWARD
TM50	614 208 0351	SPRING,COMP,BACK TENSION
TM51	614 204 5695	ASSY,REEL,SUPPLY
TM52	614 204 5701	ASSY,REEL,TAKE UP
TM53	614 195 5094	LEVER,SENSOR
TM55	614 122 9553	BRACKET,MOTOR
TM56	614 126 6831	CUSHION,RUBBER,MOTOR
TM57	412 026 1907	SCREW,SPECIAL,M COLLAR
TM59	614 133 4127	BELT,SQUARE,MAIN
TM60	614 126 6848	CUSHION,ANTI VIBRATION
TM62	614 205 1313	LEVER,EJECT SLIDE
TM64	614 151 8299	SPRING PLATE,PACK
TM65	614 221 0277	HEAD,MAGNETIC,PLAY
TM66	614 221 0277	HEAD,MAGNETIC,REC/PLAY
TM67	614 021 8251	HEAD,MAGNETIC,ERASE
TM68	614 234 0929	ASSY,MOTOR,TAPE DRIVE
TM69	614 140 1508	LEVER,REC SAFETY,DECK B
TM72	412 026 2003	SCREW,SPECIAL,+C TITE 2X4
TM73	412 026 2201	SCREW,SPECIAL, P TITE BIND 2X5
TM74	412 026 2300	SCREW,SPECIAL,CAMERA TAPPING

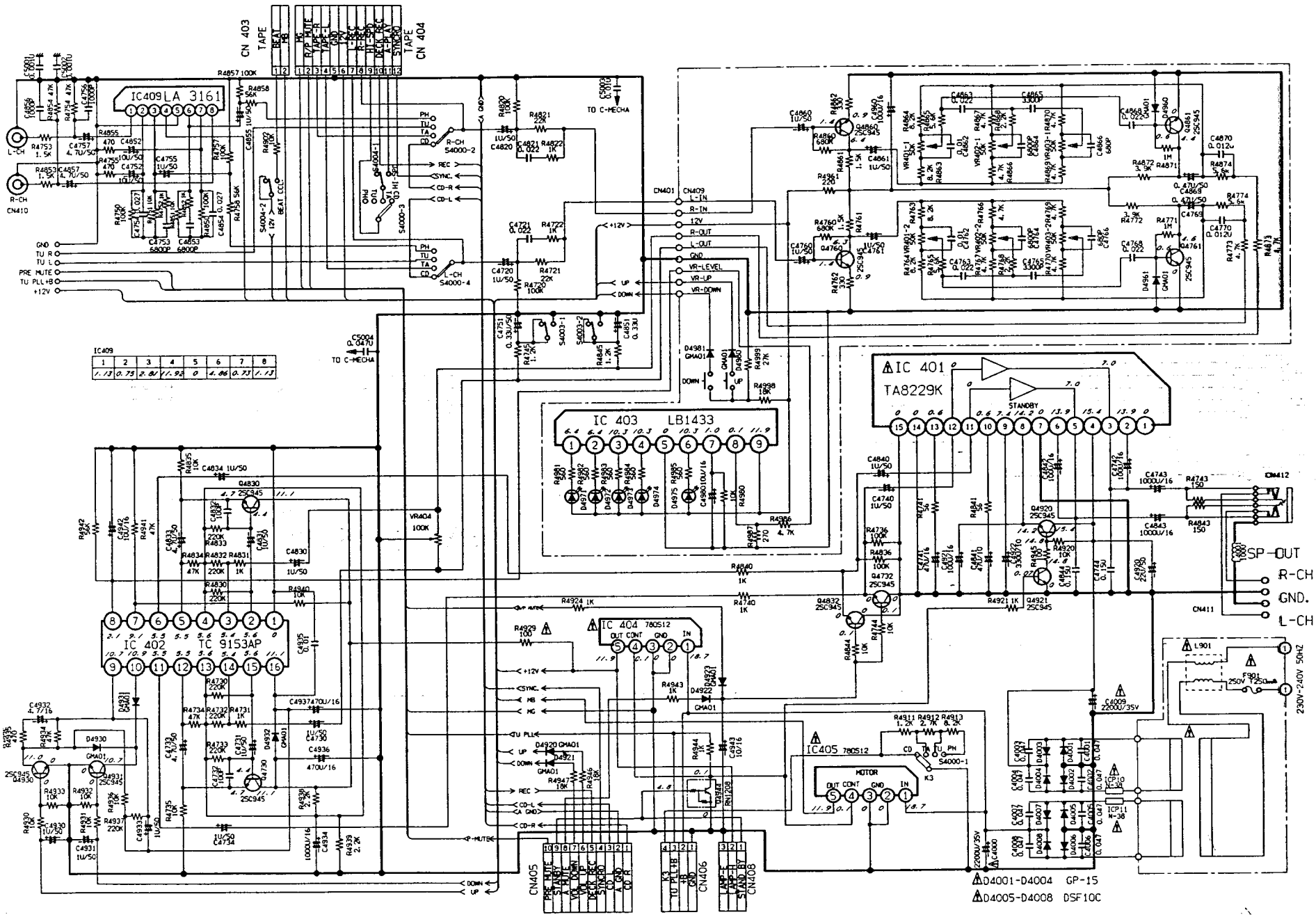
Ref. No.	Part No.	Description
TM74	412 026 2300	SCREW,SPECIAL,CAMERA TAPPING
TM75	412 026 1501	SCREW,SPECIAL,+ 2X6,DECK A
TM76	412 027 4600	SCREW,SPECIAL,+- CUP 2X8
TM77	412 004 3701	SCREW,SPECIAL,+ BIND 2X3
TM78	412 026 1709	SCREW,SPECIAL,AZIMUTH 2X7
TM79	411 025 2205	SCEWR TITE S-TPG PAN 2X6
TM82	412 012 7005	WASHER,SPECIAL,GF NYLON 1.2X4.0X0.25
TM83	412 013 5000	WASHER,SPECIAL,POLY 1.2X3.8X0.3
TM84	412 026 1808	WASHER,SPECIAL,POLY 1.45X3.8X0.5
TM85	412 026 2508	WASHER,SPECIAL,POLY 2X3.5X0.3
TM88	614 195 4424	SWITCH,LEAF,STOP
TM91	614 140 1676	LEVER, PLAY KICK B
TM92	614 139 8679	LEVER,PLAY KICK A
TM93	412 005 8101	SCREW,SPECIAL,PK COLLAR A
TM94	614 129 0683	BOSS,COLLAR B
TM95	614 151 4758	SPRING,COIL,PLAY KICK LEVER
TM96	614 208 0276	LUG,HEAD EARTH


IC101
LA9210M
IC104
LC7861NE
IC105 TDA1311AT
IC103 UPD75112
IC102 BA6296FP
TO MAIN
CN105
TO AMP PCB
CN107
TO FRONT PCB
CN106

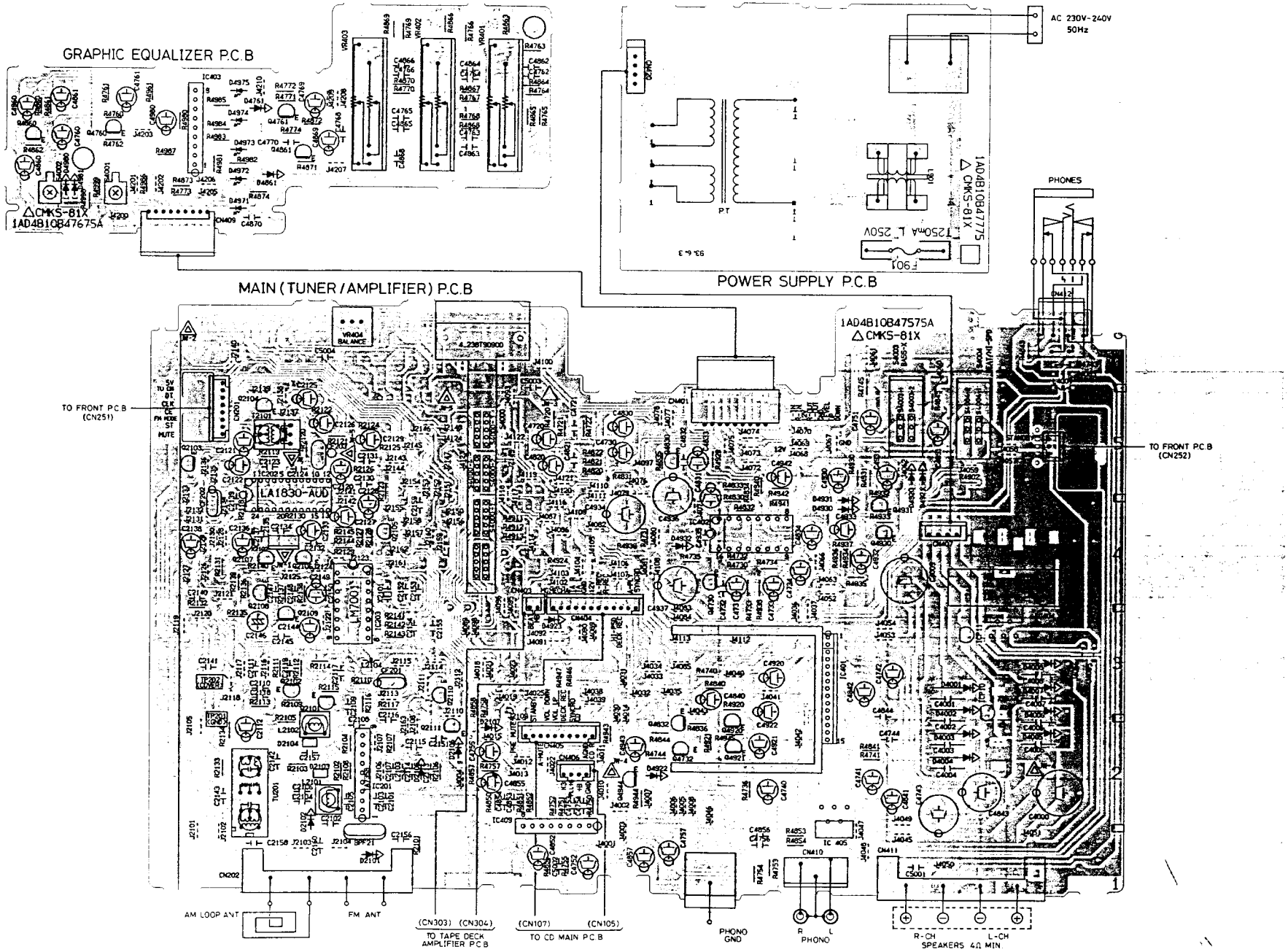

FRONT P.C.B
LCD01
△ CMKS-81X
1AD4B10B47475
AU
TUNING
PRESET
UP
DOWN
FINE
LCD
TU/MEMO
FM/MODE
BAND
POWER
TO MAIN(TUNER/ANPLIFIER)P.C.B
(CN408)
CD/MEMO
RAND
INTRO
REPEAT
EDIT
TO CD MECHA
OPEN/
CLOSE
STOP
PLAY/PAUSE
F.F
REV
CD MECHANISM
OP SW
LI SW
SPINDLE MOTOR
LOADING & SLED
MOTOR
FOCUS COIL
TRACKING
COIL
PICKUP
CN103
CN102
CN101
CLEAR SW
CD MAIN P.C.B
(CN201) (CN405) (CN405)
TO MAIN (TUNER/AMPLIFIER) P.C.B


IC201
TA7358
BPF21
FM ANT
AM ANT
CN202
IC202
LA1830
TU201
T2101
Q2102
2SC3807HD
Q2101
2SC1923Y
Q2109
2SC1815LGR
Q2108
2SC1815LGR
IC203
LM7001
NC
AM IN
FM IN
VDD1
VDD2
NC
LPF I/P
VSS
AM
FM
NC
DT
CLK
CE
XIN
XOUT
X2101
TO AMP
L
R
12V
GND
5. 6V
PRE MUTE
CN201
MUTE
ST
FM MODE
CE
CLK
DT
TUNER ON
5V
TO FRONT PCB
VOLTAGE : FM(V)
VOLTAGE : FM/AM (V)

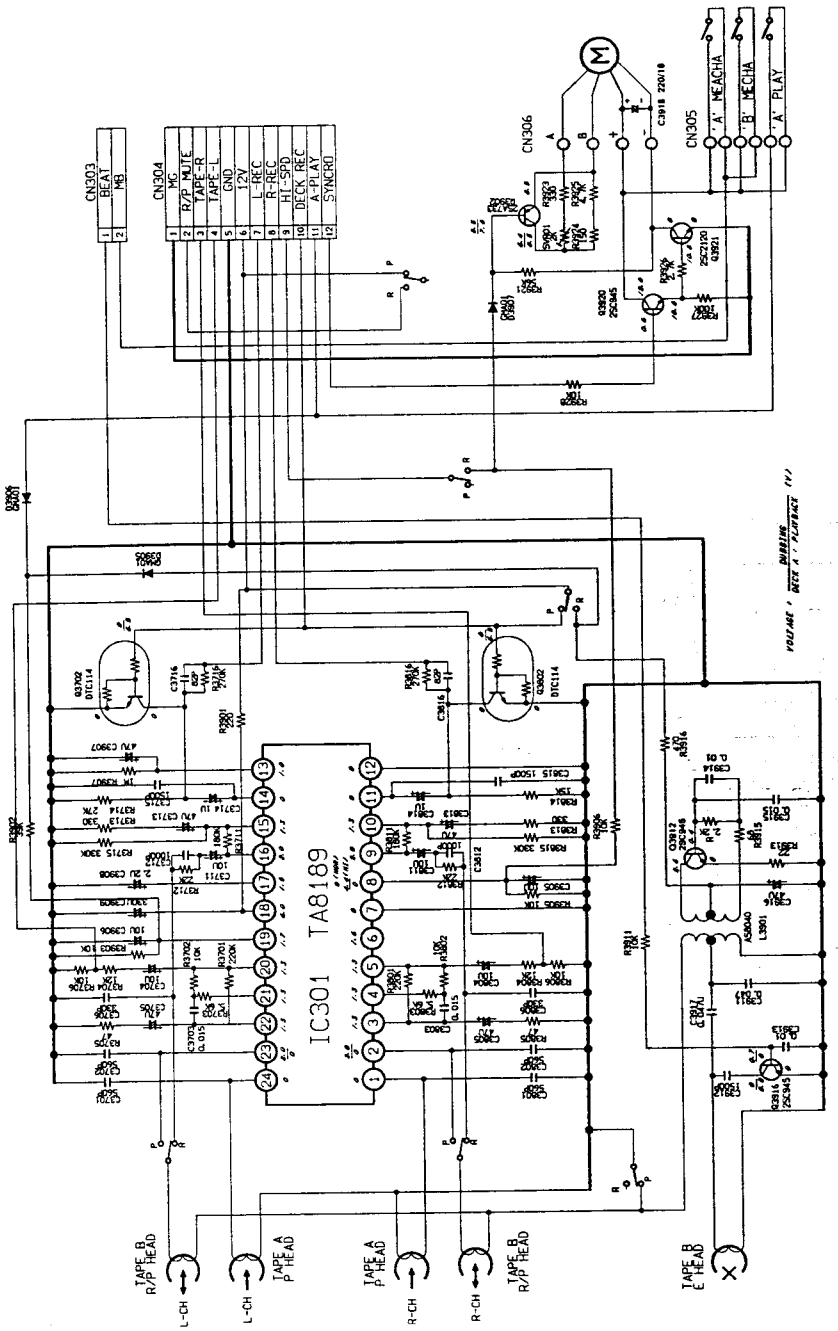

IC2501
UPD75306
X2501
4.19MHZ
SELECT SW
BRAND | S2(52) | S1(51) | S0(50)
US/CA | 0 | 1 | 0
SG/SS/AU | 0 | 1 | 1
LO/PL | 1 | 1 | 0
UK/XE/DE | 1 | 0 | 1
TO CD PCB
CN253
RESET 1
KEY 0 2
KEY 1 3
KEY 2 4
IR 5
BUSY 6
SCK 7
SI/SO 8
M +5V 9
GND 10
TO CD MECHA
TO CD SHIELD
TO TU
TU PLL +B 8
TUNER ON 7
DT(DATA) 6
CLK 5
CE 4
FM MODE 3
ST 2
MUTE 1
TO AMP
LAMP-E 1
LAMP-H 2
STAND BY 3
CN252
D2501
SLZ-1908-05
D2504
GMA01
IR
RN1202
Q2501
R2501 470
R2502 820
R2503 1.2K
R2504 1.8K
R2505 22K
R2506 470
R2507 820
R2508 1.2K
R2509 1.8K
R2510 2.7K
R2511 4.7K
R2512 15K
R2513 470
R2514 820
R2515 1.2K
R2520 1K
R2521 1K
R2522 220
R2523 560K
R2524 47K
R2525 47K
R2526 47K
R2527 1K
R2528 1K
R2529 1K
R2530 1K
R2531 1K
R2532 1K
R2533 1K
R2534 1K
R2535 1K
C2501 100/16
C2502 0.01
C2503 1000P
C2504 1000P
C2520 0.01
L2501 100U
BAND S2501
TU MEMO S2502
TU MODE S2503
TU UP S2504
TU DOWN S2505
PRESET UP S2506
CD MEMO S2507
REPEAT S2508
PLAY/PAUSE S2509
STOP S2510
FF S2511
REW S2512
OPEN/CLOSE S2513
PRESET DOWN S2514
POWER S2515
RANDOM S2516
EDIT S2517
INTRO S2518
PL251
PL252
LCD01


IC409 LA 3161
IC 401 TA8229K
IC 403 LB1433
IC 402 TC 9153AP
IC 404 78DS12
IC405 78DS12
CN 403 TAPE
CN 404 TAPE
CN401
CN409
CN410
CN411
CN412
CN405
CN406
CN408
R-CH
L-CH
SP-OUT
GND.
230V-240V 50HZ
D4001-D4004 GP-15
D4005-D4008 DSF10C

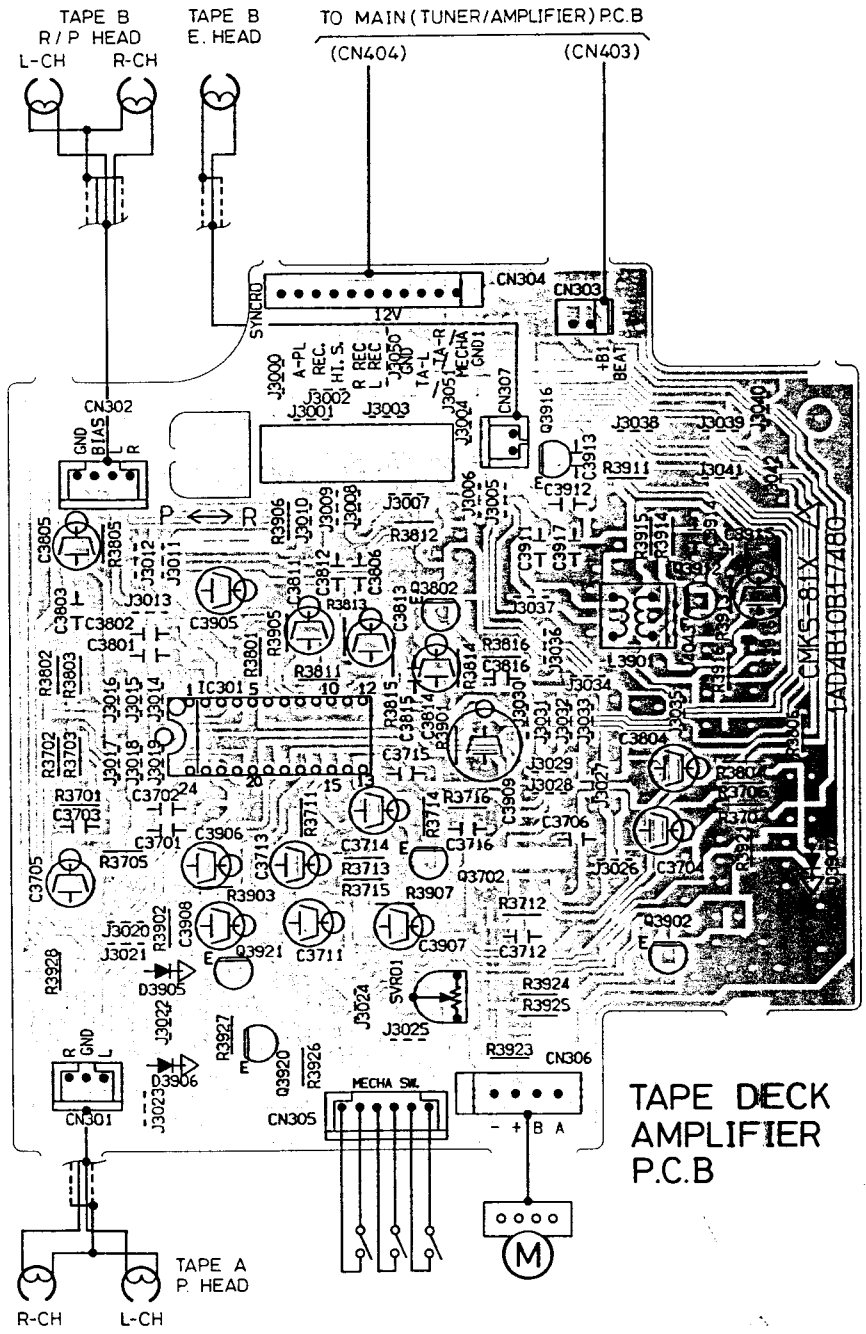
WIRING DIAGRAM (MAIN [TUNER · POWER AMPLIFIER] & GRAPHIC EQUALIZER)



:HEMATIC DIAGRAM (TAPE DECK AMPLIFIER)



WIRING DIAGRAM (TAPE DECK AMPLIFIER)



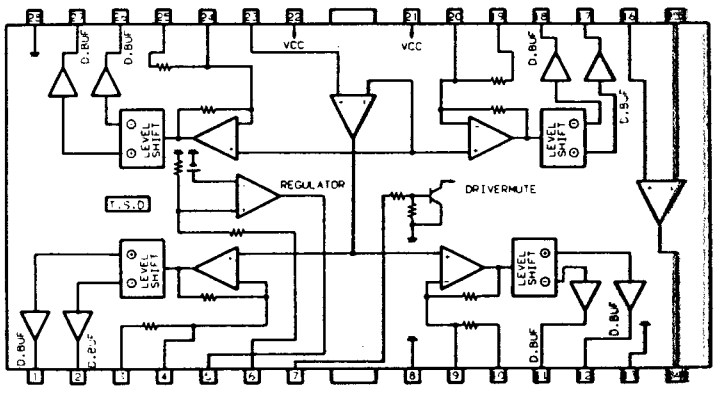
IC BLOCK DIAGRAM (CD SECTION)

IC101 LA9210M (Servo Signal Processor)

No.	PIN NAME	I/O	FUNCTION
1	NC		Non Connection
2	VEE		-5V
3	E	I	IV Convert Input (from Photo Diode E)
4	F	I	IV Convert Input (from Photo diode F)
5	FN	I	IV Converter Input
6	FO	O	IV Converter Output
7	TEAO	O	Tracking Error Amplifier Output
8	VREF2	I	Reference Voltage 2
9	VREF3	I	Reference Voltage 3
10	TES1	I	Test Input
11	ATSC	I	+ Input of Anti Shock Detect Amplifier
12	ATSC-	I	- Input of Anti Shock Detect Amplifier
13	TPA+	I	- Input of Tracking Pulse Amplifier
14	TPA-	I	+ Input of Tracking Pulse Amplifier
15	TPAO	O	Tracking Pulse Amplifier Output
16	TOFS	I	Input for Tracking Offset
17	THDS	I	Tracking Servo Hold Switch
18	TD+	I	Add the Track Jump Pulse
19	JPO	O	Track Jump Pulse Amplifier Output
20	SLEQ	I	Input for Sled Servo Equalizer
21	TDO	O	Tracking Actuator Coil Driver Output
22	FDO	O	Focus Actuator Coil Driver Output
23	FD-	I	Input for Focus Actuator Coil Driver
24	FSW	I	Focus Servo Switch
25	NC		Non Connection
26	FEAO	O	Focus Error Amplifier Output
27	FE+	I	+ Input of Focus Error Amplifier
28	FD+	I	+ Input of Focus Actuator Coil Driver
29	SPO	O	CLV Error Amplifier Output
30	SPO-	I	Input for Spindle Motor Driver
31	SPDO	O	Spindle Motor Driver Output
32	VEE		-5V
33	SLDO	O	Sled Motor Driver Output
34	SL-	I	- Input of Sled Motor Driver
35	SL+	I	+ Input of Sled Motor Driver
36	VCC		+5V
37	SLSW	I	Sled Servo Switch
38	DEFO	O	Defect Signal Output
39	2FREQ	I	Input for VCO
40	DRF	O	Focusing Servo ON : High Level

No.	PIN NAME	I/O	FUNCTION
41	NC		Non Connection
42	JP-	I	- Input of Track Jump Pulse Amplifier
43	JP+	I	+ Input of Track Jump Pulse Amplifier
44	THLD	I	Hold of Output Voltage of Tracking Servo
45	TGL	I	Tracking Gain Low
46	TOFF	I	Input For Off the Tracking Servo
47	TES	O	Tracking Error Signal
48	HFL	O	Detect Track Signal
49	FZD	O	Detect S Carve of Focus Error Signal
50	FOCS	I	Input For Off the Focus Servo
51	CLV-	I	- Input of CLV Error Amplifier
52	CLV+	I	+ Input of CLV Error Amplifier
53	SLCO	O	Slice Level Control Amplifier Output
54	$\overline{\text{EFMO}}$	I	$\overline{\text{EFMO}}$ (RF) Signal
55	AI	I	EFMO (RF) Signal
56	VDD		+5V
57	PDO	I	+ Input of VCO Control Amplifier
58	PDO-	I	- Input of VCO Control Amplifier
59	VCOC	I	VCO Control Amplifier Output
60	VCOO	O	VCO Output
61	LF1	I	Input of Low Pass Filter
62	CLK	I	Clock
63	LASER	I	Laser Control Signal
64	66/60	I	Select of DSP LC7866/LC7861
65	NC		Non Connection
66	DF2	I	Input for Defect Pulse width Control
67	DF1	I	Input for Defect Pulse width Control
68	PH3	O	Defect Detect Timing
69	BH	I	Track Detect Timing
70	PH	I	Focus Detect Timing
71	GND		Ground
72	RF SUM	O	RF SUM Amplifier Output
73	RFS-	O	IV Converter Output
74	LDO	O	Laser Diode ON
75	LDS	I	Input of Auto Laser Power Control
76	LDC	I	Input of Auto Laser Power Control
77	VDD		+5V
78	FIN1	I	IV Convert Input (From Photo Diode A+C)
79	FIN2	I	IV Convert Input (From Photo Diode B+D)
80	VREF1	I	Reference Voltage 1

IC102 BA6296FP (Dual Motor & Actuator Coil Driver)



IC BLOCK DIAGRAM (CD SECTION)

IC103 μPD75112GF-796-3BE (Micro Processor for CD & Tape Deck)

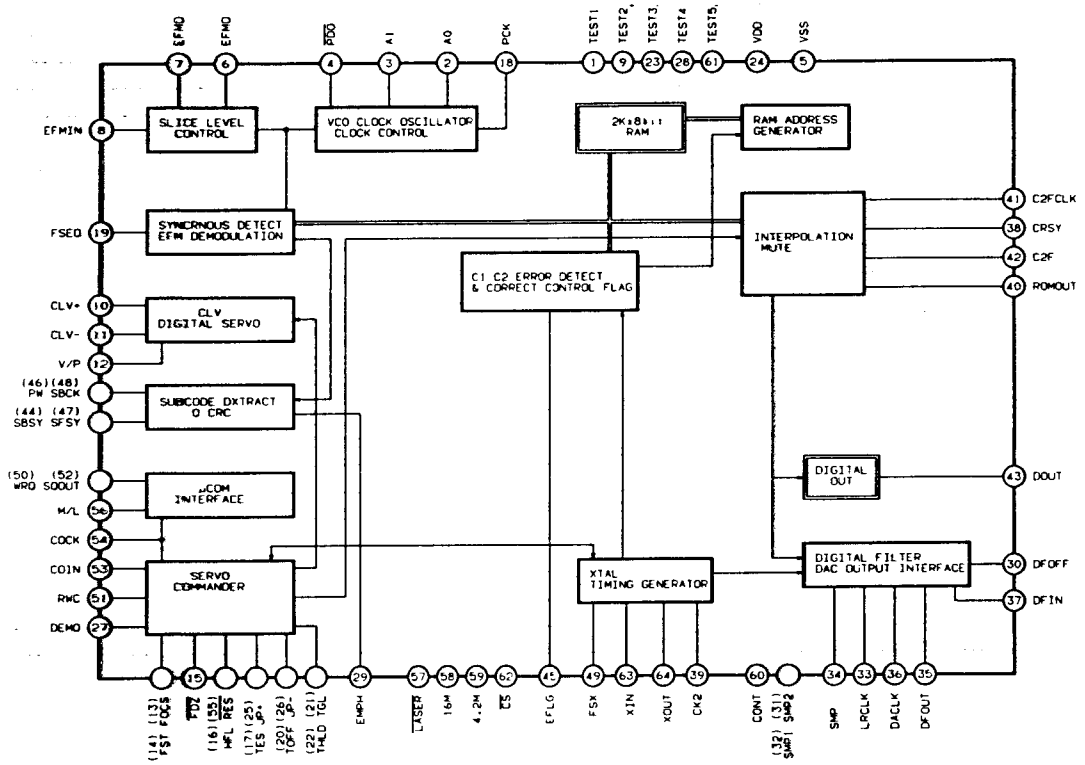
PIN No.	SIGNAL NAME	PORT NAME	DESCRIPTION		I/O
1	CD MUTE	P41	Control Signal of CD Muting		O
2	P CON	P42	Power Control Signal (POWER ON)	ACTIVE : High	O
3	VIDEO	P53	VIDEO Position Signal of Function Switch	ACTIVE : High	O
4	TUNER	P52	TUNER Position Signal of Function Switch	ACTIVE : High	O
5	TAPE	P51	TAPE Position Signal of Function Switch	ACTIVE : High	O
6	CD	P50	CD Position Signal of Function Switch	ACTIVE : High	O
7	RSET	RESET	System Reset		I
8	X2	XO	X'tal Out (4.19 MHz)		O
9	X1	XI	X'tal In (4.19 MHz)		I
10	CRECL P	P63	Editorship of REC is in progress		O
11	POWER	P62	Power ON Signal	ACTIVE : High	O
12	PLAY P	P61	PLAY Signal	ACTIVE : Low	O
13	STOP	P60	STOP Signal	ACTIVE : Low	O
14	PULL UP	P73	STANDBY (Stoppage Failure of Electricity) Signal	ACTIVE : Low	O
15	SYNCRO	P72	Synchronous Operation Signal		O
16	VOL UP	P71	Volume Up Signal		O
17	VOL DOWN	P70	Volume Down Signal		O
18	A MUTE	P83	Control Signal of Analogue Audio Muting		O
19	STANDBY	P82	Control Signal of STANDBY LED		O
20	P CON 2	P81	Power Control 2 Signal (POWER ON) (300 msec. after POWER OFF)	ACTIVE : High ACTIVE : Low	O
21	NC	P80	Not Used (Open)		O
22	PRE MUTE	P93	Pre Muting Signal for Tuner		O
23	CLV G	P92	Select Signal for CLV (Constant Linear Velocity) Gain		O
24	SUB SO	P91	Data Out to Sub Micro Processor (For Tuner)		O
25	SUB SCK	P90	Clock Out to Sub Micro Processor (For Tuner)		O
26	VSS	VSS	Ground		---
27	SUB BUSY	P13	Busy Signal In from Sub Micro Processor (For Tuner)		I
28	V CHK	P12	Detection Signal for Stoppage Failure of Electricity		I
29	WRQ	P11	DSP (Digital Signal Processor) Interface [Sub Q Request]		I
30	IR	P10	Infrared Ray Receiving (Remocon) Signal		I
31	FUNC IN	PTH03	Function Switch Signal		I
32	KEY2	PTH02	Key Input Signal		I
33	KEY1	PTH01	Key Input Signal		I
34	KEY0	PTH00	Key Input Signal		I
35	THLD	TI0	THLD Signal		I
36	NC	TI1	Not Used (+5V)		---
37	SLED OUT	P23	Outer Direction Signal for SLED Motor		O
38	NC	P22	Not Used (Ground)		---
39	SLED IN	P21	Internal Direction Signal for SLED Motor		O
40	RWC	P20	DSP (Digital Signal Processor) Interface [Command Latch]		O
41	SQOUT	P03 / SI	DSP (Digital Signal Processor) Interface [Sub Q Data]		I
42	COIN	P02 / SO	DSP (Digital Signal Processor) Interface [Command Data]		O
43	CQCK	P01 / SCK	DSP (Digital Signal Processor) Interface [Clock]		O
44	DRF	P00 / INT4	DRF Signal		I
45	NC	P123	Not Used (VDD)		---
46	OPEN SW	P122	Switch Detection Signal for Open End of CD Tray		I
47	LIMIT SW	P121	Switch Detection Signal for Limit of Pickup		I
48	NC	P120	Not Used (Ground)		---
49	NC	P133	Not Used (Ground)		---
50	REC SW	P132	Switch Detection Signal for REC of TAPE Deck Mechanism	ACTIVE : High	I
51	DIREC	P131	Run Direction of TAPE (Edge Detection)		I
52	NC	P130	Not Used (VDD)		---
53	DAC SEL	P143	Select Signal for DAC (Digital to Analogue Converter)		I
54	HI SEL	P142	Select Signal for High-speed Access		I
55	VIDEO SEL	P141	Select Signal of VIDEO or PHONO		I
56	NC	P140	Not Used (VDD)		---
57	NC	NC	Not Connection (VDD)		---
58	VDD	VDD	Power Supply +5V		---
59	NC	P33	Not Used (Open)		---
60	DRV MUTE	P32	DRIVE Muting Signal for CD		O
61	DSP RESET	P31	Reset Control Signal for DSP (Digital Signal Processor)		O
62	ATT	P30	DAC (Digital to Analogue Converter) Interface [Data]		O
63	SHIFT	P43	DAC (Digital to Analogue Converter) Interface [Clock]		O
64	LATCH	P42	DAC (Digital to Analogue Converter) Interface [Latch]		O

IC BLOCK DIAGRAM (CD SECTION)

IC104 LC7861NE (Digital Signal Processor)

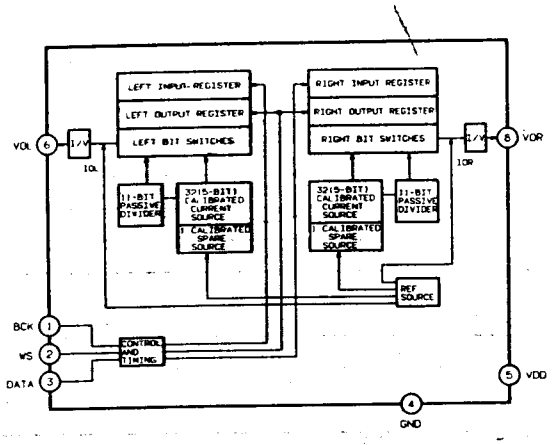
No	PIN NAME	I/O	DESCRIPTION
1	TEST1	I	For TEST. Normal time is non connection.
2	AO	O	Input from VCO output in LA9210 .(8.6436MHz)
3	AI	I	Phase comparison output of VCO and EFM signal.
4	PDO	O	
5	VSS		GND
6	$\overline{EFMO}$	O	Negative output through amplitude limiter. Antiphase of $\overline{EFMO}$. This signal use SLICE LEVEL CONTROL.
7	EFMO	O	Positive output through amplitude limiter. Antiphase of EFMO. This signal use SLICE LEVEL CONTROL.
8	EFMIN	I	Inputting HF signal of 1~2V_{P-P}. This signal use SLICE LEVEL CONTROL.
9	TEST2	I	For TEST. Normal time is non connection.
10	CLV+	O	Output for DISC MOTOR CONTROL.
11	CLV-	O	Output for DISC MOTOR CONTROL.
12	V/P	O	CLV rough Servo time : Output "H" Phase control time : Output"L"
13	FOCS	O	Output "H" : Lens pull up with slowly than stop the Focus
14	FST	O	Servo. If $\overline{FZD}$ generate, it reset output of FOCS. For lead-in of
15	$\overline{FZD}$	I	Focus
16	HFL	I	Comply with command of track jump, it oscillate kick Pulse, JP+ & JP-. It jump the prescribed number of track (1,4,16,64).
17	TES	I	Comply with command of track jump, it oscillate kick Pulse, JP+ & JP-. It jump the prescribed number of track (1,4,16,64).
18	PCK	O	PCK Monitor (4.3218MHz)
19	FSEQ	O	SYNC (FS of truth) detected from EFM signal = SYNC of counter : "H" (Latch Output during in 1 frame)
20	TOFF	O	Comply with command of track jump, it oscillate kick Pulse, JP+ & JP-. It jump the prescribed number of track (1,4,16,64).
21	TGL	O	
22	THLD	O	
23	TEST3	I	For TEST. Normal time is non connection.
24	VDD		+5V
25	JP+	O	Comply with command of track jump, it oscillate kick Pulse,
26	JP-	O	JP+ & JP-. It jump the prescribed number of track (1,4,16,64).
27	DEMO	I	For adjustment of production process. Sound on function.
28	TEST4	I	For TEST. Normal time is non connection.
29	EMPH	O	Output is "H" time, it need de-emphasis
30	DFOFF	I	ON/OFF Switching of Digital Filter. Output "H" : Filter OFF

No	PIN NAME	I/O	DESCRIPTION
31	SMP2	O	Output of signal to DAC, Signal of Latch & L/R select, Signal
32	SMP1	O	for Sampling Hold
33	LRCLK	O	Output of signal to DAC, Signal of Latch & L/R select, Signal
34	SMP	O	for Sampling Hold
35	DFOUT	O	Output of signal to DAC, Signal of Latch & L/R select, Signal for Sampling Hold
36	DACLK	O	Output of signal to DAC, Signal of Latch & L/R select, Signal for Sampling Hold
37	DFIN	O	For TEST. Normal time is non connection.
38	LRSY	O	For output of signal that Comply with CD-ROM
39	CK2	O	For output of signal that Comply with CD-ROM
40	ROMOUT	O	For output of signal that Comply with CD-ROM
41	C2FLCK	O	For output of signal that Comply with CD-ROM
42	C2F	O	For output of signal that Comply with CD-ROM
43	DOUT	O	Output of DIGITAL OUT
44	SBSY	O	Synchronizing signal of sub-code block.
45	EFLG	O	For correction monitor of C1, C2, single, double.
46	PW	O	SFSY is Synchronizing signal of sub-code & frame. Clock of
47	SFSY	O	eighth send to SBCK then read out the sub-code of P, Q, R, S,
48	SBCK	I	T, U, V, & W.
49	FSX	O	Output of Synchronizing signal (7.35KHz)
50	WRQ	O	Data sub-code Q pass the CRC check then WRQ do "H". It
51	RWC	I	detect at external, Data read out from SQOUT by send the
52	SQOUT	O	$\overline{CQCK}$. RWC set the "H" by Micro Processor then it let
53	COIN	I	command by send with Synchronizing $\overline{CQCK}$ command data.
54	$\overline{CQCK}$	I	
55	$\overline{RES}$	I	Turn on the Power Supply time : Once "L"
56	M/L	I	Data of SQOUT want at the LBS first time : M/L set the "L".
57	$\overline{LASER}$	O	This output can control at Serial Control from Micro Processor
58	16M	O	16M Output (16.9344MHz)
59	4M	O	4M Output (4.2336MHz)
60	CONT	O	This output can control at Serial Control from Micro Processor
61	TEST5	I	For TEST. Normal time is non connection.
62	$\overline{CS}$	I	Chip select Terminal. This terminal "L" : LC7866 is active (Internal Resistor : Pull Down)
63	XIN	I	Connection Terminal of crystal oscillation (16.9344MHz)
64	XOUT	O	Connection Terminal of crystal oscillation (16.9344MHz)



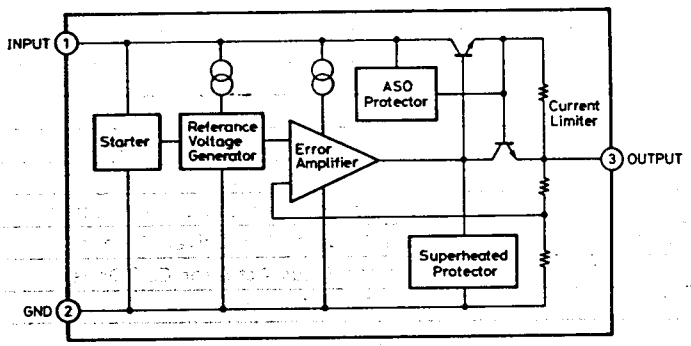
IC BLOCK DIAGRAM (CD & TUNER SECTION)

IC105 TDA1311A(T) (Stereo Continuous Calibration Digital to analog (D / A) Converter)

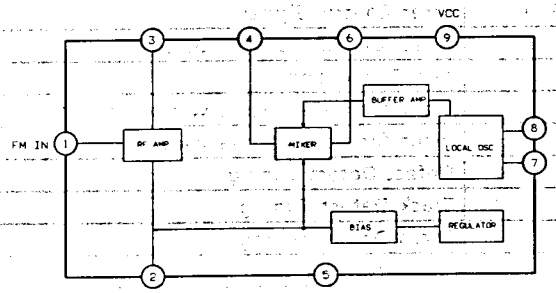


No.	PIN NAME	I/O	FUNCTION
1	BCK	I	Bit Clock Input
2	WS	I	Word Select Input
3	DATA	I	Data Input
4	GND	-	Ground
5	V_{DD}	-	Supply Voltage
6	VOL	O	Left Channel Output
7	NC	-	Not Connected
8	VOR	O	Right Channel Output

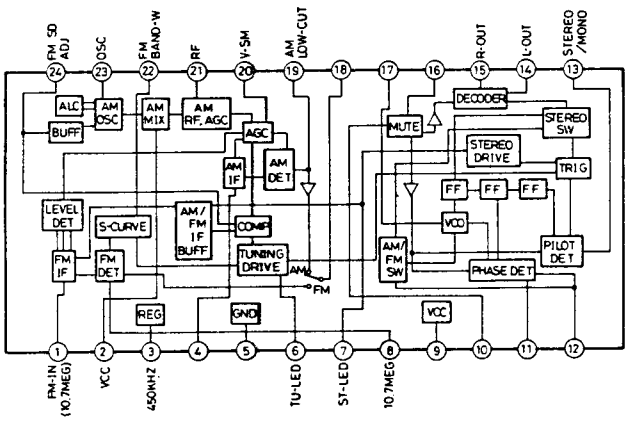
IC106 NJM78M05FA (3-Terminal Voltage Regulator)



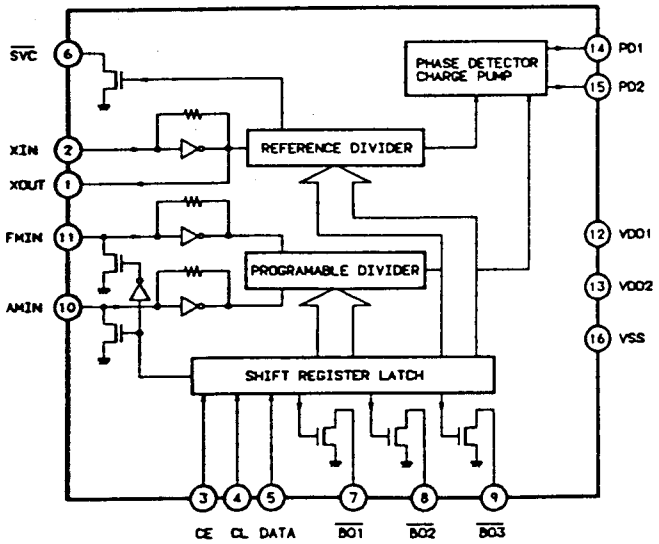
IC201 TA7358 (FM RX Front End)



IC202 LA1830-AUD (IF & PLL MPX Demodulator System For AM & FM)

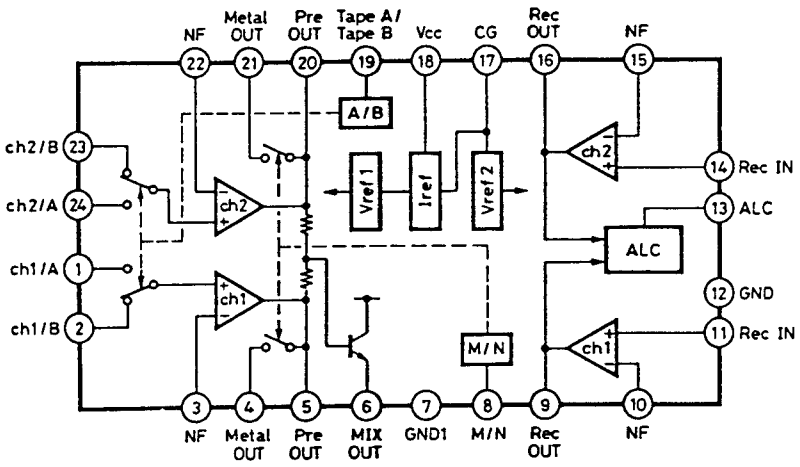


IC203 LM7001 (PLL Frequency Synthesizer)

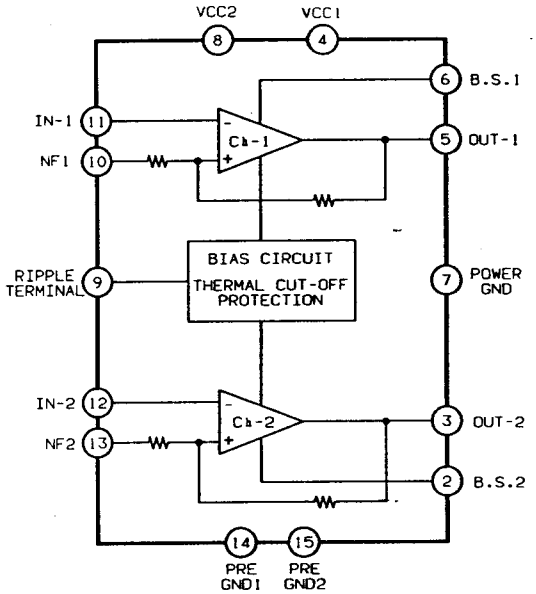


IC BLOCK DIAGRAM (TAPE DECK & MAIN AMPLIFIER SECTION)

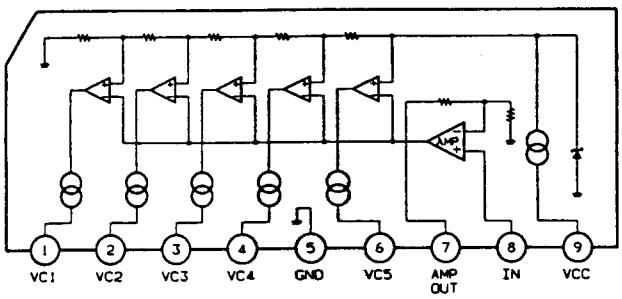
IC301 TA8189N (Dual Pre-Amplifier System For Tape Deck)



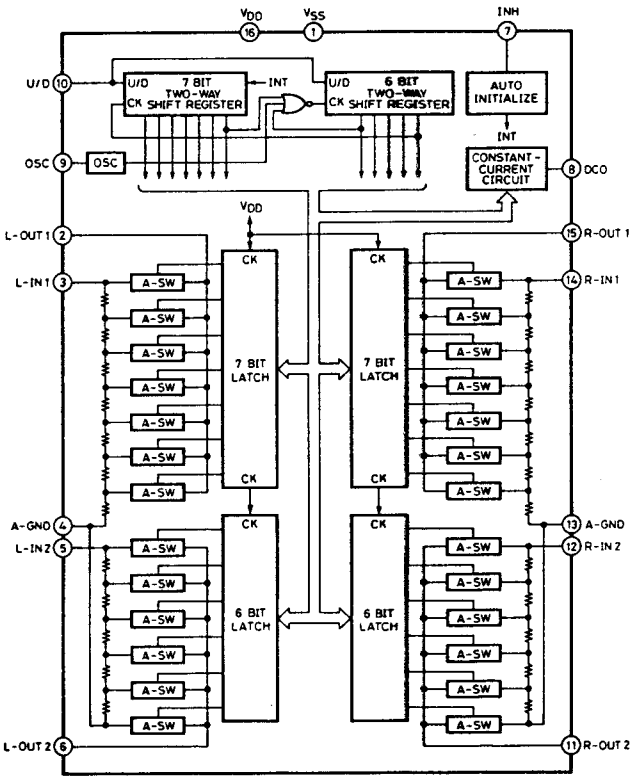
IC401 TA8229K (Power Amplifier)



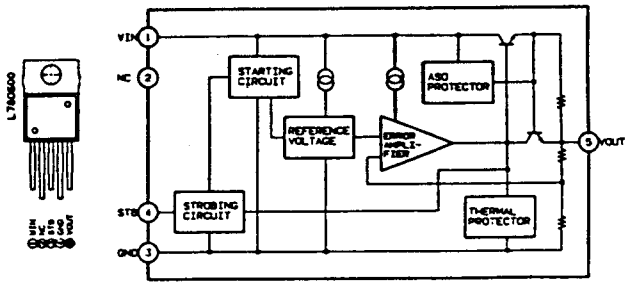
IC403 LB1433N (LED Level Meter Driver)



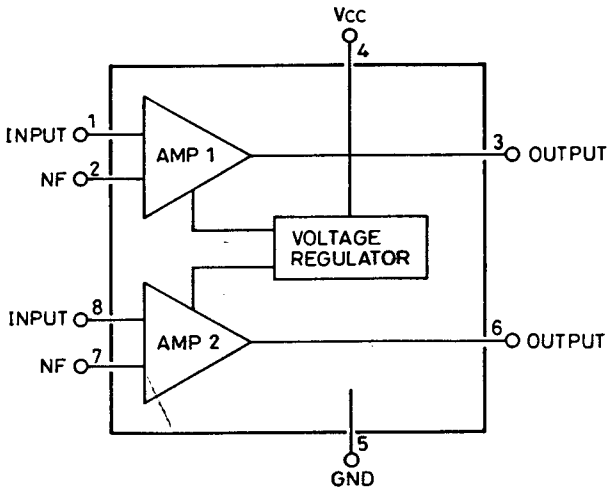
IC402 TC9153AP (Eiectronic Volume)



IC404 · 405 L78OS12 (5-Terminal Voltage Regulator)



IC409 LA3161 (2-Channel Pre-Amplifier)



IC BLOCK DIAGRAM (FRONT SECTION)

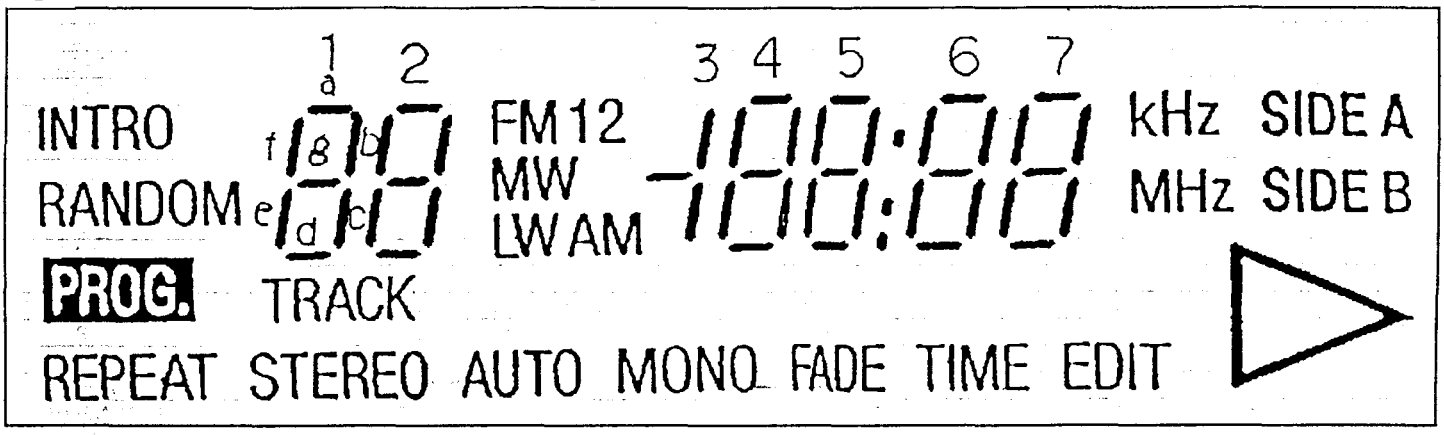
IC251 μPD75306GF-257-3B9 (Tuner & LCD Driving Micro Processor)

PIN No.	SIGNAL NAME	PORT NAME	DESCRIPTION	I/O	CONNECT
1	SEG13	S12	Segment of Liquid Crystal Display	O	LCD
2	SEG14	S13	Segment of Liquid Crystal Display	O	LCD
3	SEG15	S14	Segment of Liquid Crystal Display	O	LCD
4	SEG16	S15	Segment of Liquid Crystal Display	O	LCD
5	SEG17	S16	Segment of Liquid Crystal Display	O	LCD
6	NC	S17	Not Used (Open)	-	OPEN
7	NC	S18	Not Used (Open)	-	OPEN
8	NC	S19	Not Used (Open)	-	OPEN
9	NC	S20	Not Used (Open)	-	OPEN
10	NC	S21	Not Used (Open)	-	OPEN
11	NC	S22	Not Used (Open)	-	OPEN
12	NC	S23	Not Used (Open)	-	OPEN
13	NC	S24/BP0	Not Used (Open)	-	OPEN
14	NC	S25/BP1	Not Used (Open)	-	OPEN
15	NC	S26/BP2	Not Used (Open)	-	OPEN
16	NC	S27/BP3	Not Used (Open)	-	OPEN
17	AUTO	S28/BP4	Auto Tuning Signal ACTIVE : HIGH LEVEL	O	OPEN
18	NC	S29/BP5	Not Used (Open)	O	OPEN
19	NC	S30/BP6	Not Used (Open)	O	OPEN
20	NC	S31/BP7	Not Used (Open)	O	OPEN
21	COM 0	COM0	Common of Liquid Crystal Display	O	LCD
22	COM 1	COM1	Common of Liquid Crystal Display	O	LCD
23	COM 2	COM2	Common of Liquid Crystal Display	O	LCD
24	COM 3	COM3	Common of Liquid Crystal Display	O	LCD
25	BIAS	BIAS	Bias of Liquid Crystal Display	-	BIAS
26	VLC0	V_{LC0}	Power Supply for Drive of Liquid Crystal Display	-	V_{LC0}
27	VLC1	V_{LC1}	Power Supply for Drive of Liquid Crystal Display	-	R
28	VLC2	V_{LC2}	Power Supply for Drive of Liquid Crystal Display	-	R
29	STEP(Not Used)	P40	AM Step Selection 9kHz (VDD) / 10kHz (VSS)	I	TUNER (V_{SS})
30	ST (Not Used)	P41	STEREO Signal ACTIVE : LOW LEVEL	I	TUNER(V_{SS})
31	SD (Not Used)	P42	STATION DETECTION Signal ACTIVE : LOW LEVEL	I	TUNER(V_{SS})
32	NU	P43	Not Used (Ground)	I	V_{SS}
33	VSS	V_{SS}	Ground	-	GROUND
34	POWER	P50	Tuner Power Signal ACTIVE : LOW LEVEL	O	TUNER
35	MUTE	P51	Tuner Mute Signal ACTIVE : LOW LEVEL	O	TUNER
36	NC	P52	Not Used (Open)	O	OPEN
37	NC	P53	Not Used (Open)	O	OPEN
38	NU	P00/INT4	Not Used (Ground)	I	V_{SS}
39	SCK	P01/SCK	Serial Clock Signal from CD Micro Processor	I	CD μCON
40	NU	P02/SO/SB0	Not Used (Ground)	I	V_{SS}
41	SI	P03/SI/SB1	Serial Data (Bus) from CD Micro Processor	I	CD μCON
42	NU	P10/INT0	Not Used (Ground)	I	V_{SS}
43	NU	P11/INT1	Not Used (Ground)	I	V_{SS}
44	NU	P12/INT2	Not Used (Ground)	I	V_{SS}
45	NU	P13/T10	Not Used (Ground)	I	V_{SS}
46	NC	P20/PT100	Select Signal for AM Signal Type Wide (HIGH) / Narrow (LOW)	O	OPEN
47	NC	P21		O	OPEN
48	NC	P22/PCL		O	OPEN
49	BUSY	P23/BUZ	Serial Bus Busy Signal Out to CD Micro Processor	O	CD μCON
50	S0	P30/LCDCL	Initial (Destination) Set for User = Country (Open or Ground)	I	V_{SS}
51	S1	P31/SYNC	Initial (Destination) Set for User = Country (Open or Ground)	I	OPEN
52	S2	P32	Initial (Destination) Set for User = Country (Open or Ground)	I	V_{SS}
53	FM MUTE	P33	Select Signal for FM Auto Mute SET (Open) / NOT (V_{SS})	I	V_{SS}
54	VDD	V_{DD}	Power Supply +5V	-	+5V
55	NU	XT1	Not Used (Ground) OSC X'tal Terminal for Sub System Clock	-	V_{SS}
56	NC	XT2	Not Used (Open) OSC X'tal Terminal for Sub System Clock	-	OPEN
57	NC	NC	Non Connection		OPEN
58	X1	XI	X'tal In. Main System Clock (4.194304 MHz)	I	X'TAL
59	X2	XO	X'tal Out.Main System Clock (4.194304 MHz)	O	X'TAL
60	SEEK (Not Used)	P60/KR0	Select Signal for Auto Tuning Mode ON (Open) / OFF (V_{SS})	I	V_{SS}
61	AM IF (Not Used)	P61/KR1	Select Signal for AM IF SET (Open) / NOT (V_{SS})	I	V_{SS}
62	NX ADJ (Not Used)	P62/KR2	Select Signal for NX Adj. Mode NOR (Open) / ADJ (V_{SS})	I	OPEN
63	MONO	P63/KR3	Compulsion Monaural ACTIVE : HIGH LEVEL	O	TUNER
64	DO	P70/KR4	Data Signal from LM7001	O	TUNER
65	CL	P71/KR5	Data Signal from LM7001	O	TUNER

IC BLOCK DIAGRAM (FRONT SECTION)

PIN No.	SIGNAL NAME	PORT NAME	DESCRIPTION	I/O	CONNECT
66	CE	P72/KR6	Data Signal from LM7001	O	TUNER
67	NC	P73/KR7		O	OPEN
68	RESET	RESET	System Reset Signal	-	RESET CIRCUIT
69	SEG1	S0	Segment of Liquid Crystal Display	O	LCD
70	SEG2	S1	Segment of Liquid Crystal Display	O	LCD
71	SEG3	S2	Segment of Liquid Crystal Display	O	LCD
72	SEG4	S3	Segment of Liquid Crystal Display	O	LCD
73	SEG5	S4	Segment of Liquid Crystal Display	O	LCD
74	SEG6	S5	Segment of Liquid Crystal Display	O	LCD
75	SEG7	S6	Segment of Liquid Crystal Display	O	LCD
76	SEG8	S7	Segment of Liquid Crystal Display	O	LCD
77	SEG9	S8	Segment of Liquid Crystal Display	O	LCD
78	SEG10	S9	Segment of Liquid Crystal Display	O	LCD
79	SEG11	S10	Segment of Liquid Crystal Display	O	LCD
80	SEG12	S11	Segment of Liquid Crystal Display	O	LCD

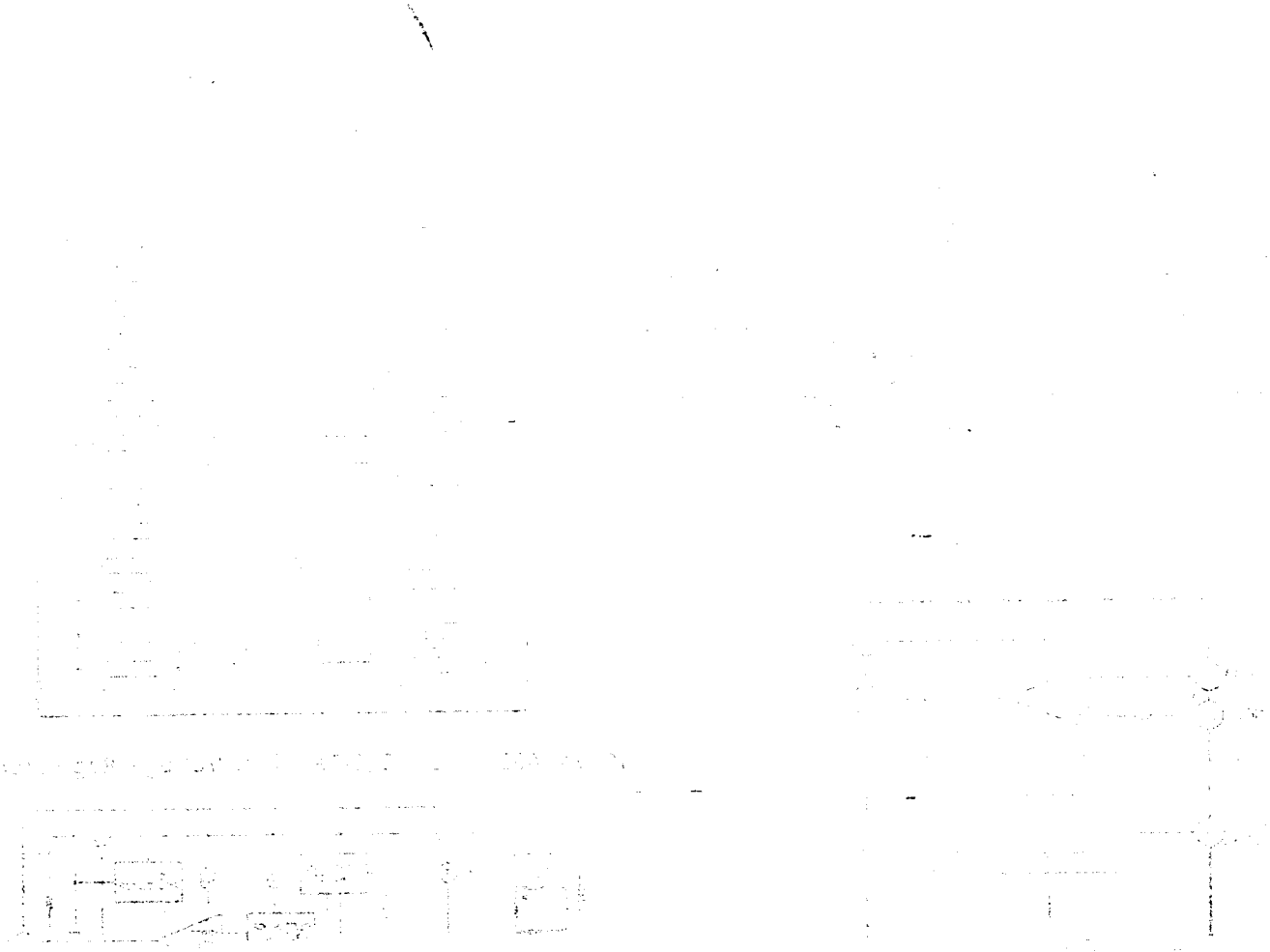
LCD



NO.	COM. 1	COM. 2	COM. 3	COM. 4
1	INTRO	RANDOM	PROG.	REPEAT
2	1f	1g	1e	1d
3	1a	1b	1c	ST
4	2f	2g	2e	2d
5	2a	2b	2c	TRACK
6	FM	MW	LW	AM
7	1	2	3b·c	3g
8	4h	4g	4e	4d
9	4a	4b	4c	AUTO
10	5f	5g	5e	5d
11	5a	5b	5c	MONO

NO.	COM. 1	COM. 2	COM. 3	COM. 4
12	:	.	FADE	TIME
13	6f	6g	6e	6d
14	6a	6b	6c	EDIT
15	4f	7g	7e	7d
16	7a	7b	7c	▷
17	kHz	MHz	SIDE A	SIDE B
18	COM. 1			
19		COM. 2		
20			COM. 3	
21				COM. 4

MEMO



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